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FIG. 1

1 AlaSerCysLeuAsnCysSerAlaSerIleIleProAspArgGluValLeuTyrArgGlu
 GGCCTCTGCTTGAAGTCTCGCGAGCATACATACCTGACAGGGAAAGTCCTTACCGAGA
 CCGGAGGACGAATTGACGAGCCGCTCGTAGTATGGACTGTCCCTCAGGAGATGGCTCT
 PheAspGluMetGluGluCysSerGlnHisLeuProTyrIleGluGlnGlyMetMetLeu
 61 GTTCGATGAGATGGAAGAGTGTCTCTCAGCACTTACCGTACATCGAGCAAGGGATGATGCT
 CAAGCTACTCTACCTTCTACGAGAGTCGTGAATGGCATGTAGCTCGTCCCTACTACGA
 AlaGluGlnPheLysGlnLysAlaLeuGlyLeu
 121 CGCCGAGCAGTTCAAGCAGAAGGCCCTCGGCCCTCC
 GCGGCTCGTCAAGTTCTCCGGAGCCGGAGG

FIG. 3

1 GlyCysValValIleValGlyArgValValLeuSerGlyLysProAlaIleIleProAsp
 CTGGCTGCGTGGTCATAGTGGCAGGGTCGTCTGTCCGGAAAGCCGGCAATCATACCTG
 GACCGACGCACCAGTATCACCCGTCCAGCAGAACAGGCCCTCGGCCGTTAGTATGGAC
 ArgGluValLeuTyrArgGluPheAspGluMetGluGluCysSerGlnHisLeuProTyr
 61 ACAGGGAAAGTCCTCTACCGAGAGTCGATGAGATGGAAGAGTGTCTCAGCACTTACCGT
 TGTCCTTCAGGAGATGGCTCTCAAGCTACTCTACCTCTCACGAGAGTCGTGAATGGCA
 A
 IleGluGlnGlyMetMetLeuAlaGluGlnPheLysGlnLysAlaLeuGlyLeuLeuGln
 121 ACATCGAGCAAGGGATGATGCTCGCCAGCAGTCAAGCAGAACAGGCCCTCGGCCCTCG
 TGAGCTCGTCCCTACTACGAGCGGCTCGTCAAGTTCTCCGGAGCCGGAGGACG
 ThrAlaSerArgGlnAlaGluValIleAlaProAlaValGlnThrAsnTrpGlnLysLeu
 181 AGACCGCGTCCCGTCAGGCAGAGGTTATGCCCTGCTGTCCAGACCAACTGGCAAAAC
 TCTGGCGAGGGCAGTCCGTCCAATAGCGGGACGACAGGTCTGGTTGACCGTTTTG
 GluThrPheTrpAlaLysHisMetTrpAsnPheIleSerGlyIleGlnTyrLeuAlaGly
 241 TCGAGACCTTCTGGCGAAGCATATGTGAAACTCATCAGTGGATAACAATACTGGCGG
 AGCTCTGGAAGACCCGCTTCGTATACACCTGAAGTAGTCACCTATGTTATGACCGCC
 LeuSerThrLeuProGlyAsnProAlaIleAlaSerLeuMetAlaPheThrAlaAlaVal
 301 GCTTGTCAACGCTGCCCTGGTAACCCGCCATTGCTTACAGCTGCTTACAGCTGCTG
 CGAACAGTTCGACGGACCATTGGGGCGGTAAACGAAAGTAACCGAAAATGTCGACGAC
 ThrSerProLeuThrThrSerGln
 361 TCACCAAGCCCCACTAACCACTAGCCAAA
 AGTGGTCGGGTGATTGGTGATCGGTTT

FIG. 2



5-1-1	1	[ggcctcctgttgaactcgccggc]ATCATACCTGACAGGGAG
81	1	GTCCCCGGAAAGCCGGCAATCATACCTGACAGGGAG
91	1	ctggctcggttcatAGTGGGCAAGGGTCTGTTGGGGAAAGCAGGGCAATCATACCTGACAGGGAG
1-2	1	GGTCATAGTGGGCAAGGGTCTGTTGGGGAAAGCAGGGCAATCATACCTGACAGGGAG
5-1-1	48	TCCCTCTACCGAGAGTCGATGAGATGGAAGAGTGCCTCAGGCACTTACCGTACATCGAGCAAGGGATGATGC
81	36	TCCCTCTACCGAGAGTCGATGAGATGGAAGAGTGCCTCAGGCACTTACCGTACATCGAGCAAGGGATGATGC
91	70	TCCCTCTACCGAGAGTCGATGAGATGGAAGAGTGCCTCAGGCACTTACCGTACATCGAGCAAGGGATGATGC
1-2	60	TCCCTCTACCGAGAGTCGATGAGATGGAAGAGTGCCTCAGGCACTTACCGTACATCGAGCAAGGGATGATGC
5-1-1	120	TGCCCGAGGAGTTCAAGCAGAAAGGCCCTCGGCCCTCC
81	108	TGCCCGAGGAGTTCAAGCAGAAAGGCCCTCGGCCCTCGGCCCTGAGACCCGCTCCGAGAGGGTTATCGCCC
91	142	TGCCCGAGGAGTTCAAGCAGAAAGGCCCTCGGCCCTCGGCCCTGAGACCCGCTCCGAGAGGGTTATCGCCC
1-2	132	TGCCCGAGGAGTTCAAGCAGAAAGGCCCTCGGCC
81	180	CTGCTGTCCAGACCAACTGGCAAAACTCGAGACCTTCTGGCGAAAGCATATGTGGAACTTCATCAGTGGGA
91	214	CTGCTGTCCAGACCAACTGGCAAAACTCGAGACCTTCTGGCGAAAGCATATGTGGAACTTCATCAGTGGGA
81	252	TACAAATACTGGGGCTTGTCAACGCTGCCGGtaaccccgccattgtttttacagctg
91	286	TACAAATACTGGGGCTTGTCAACGCTGCCGG
81	324	ctgtcaccaggcccactaaccacatggccaaa

FIG. 4



SerGlyLysProAlaIleProAspArgGluValLeuTyrArgGluPheAspGluMet
1 GTCCGGGAAGCCGGCAATCATACCTGACAGGAAGTCTCTACCGAGAGTTGAGAT
CAGGCCCTTCGGCCGTAGTATGGACTGTCCCTCAGGAGATGGCTCAAGCTACTCTA

GluGluCysSerGlnHisLeuProTyrIleGluGlnGlyMetMetLeuAlaGluGlnPhe
61 GGAAGAGTGGCTCTCAGCACTTACCGTACATCCGAGCAAGGGATGATGCTGGCGAGCAGTT
CCTTCTCACGAGAGTGGTGAATGGCATGTAGCTCGTCCCTACTACGAGGGCTCGTCAA

LysGlnLysAlaLeuGlyLeuLeuGlnThrAlaSerArgGlnAlaGluValIleAlaPro
121 CAAAGCAGAAGGCCCTGGCCTCTGCAGACCCGGCGTCCCGTCAAGCAGGGTATCGCCCC
GTTCGTCTTCCGGAGCCGGAGGACGTCTGGCAGGGCAGTCCGTCCAATAGGGGG

AlaValGlnThrAsnTrpGlnLysLeuGluThrPheTrpAlaLysHisMetTrpAsnPhe
181 TGCCTCCAGACCAACTGGCAAAAACCTCGAGAACCTCTGGCGAAGCATATGTGGAACTT
ACGACAGGTCTGGTTGACCGTTGGCTTTGAGCTGGAAAGAACGGCTCTCGTATAACACCTTGAA

IleSerGlyIleGlnTyrLeuAlaGlyLeuSerThrLeuProGlyAsnProAlaIleAla
241 CATCAGTGGGATAACAATACTTGGGGCTTGCTCAACGGCTGGTAACCCGGCCATTGCG
GTAGTCACCCTATGTTATGAACCGCCGAAACAGTTGGGACGGACCATTGGGTAAACG

SerIleuMetAlaPheThrAlaAlaValThrSerProLeuThrSerGln
301 TTCATTGATGGCTTTACAGCTGCTGCTACCCACTAACCAACTAGCCAAA
AAGTAACCTACCGAAAATGTCGACGACAGTGGTGGGTGATTGGTATCGGTT



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FIG.

ASPAlaHisPheLeuSerGlnThrLysGlnSerGlyGluAsnLeuProTyrrLeuValAla
 1 GATGCCCACTTCTATCCCAGACAAAGCAGACTGGAGAACCTTCCTTACCTGGTAGCG
 CTACGGGTGAAAGATAGGGTCTCTGTTCGTCTCACCCCTCTGGAAAGGAATGGACCATCGC
 TyrGlnAlaThrValCysAlaArgAlaGlnAlaProProProSerTrpAspGlnMetTrp
 61 TACCAAGGCCACCGTGTGGCTTAGGGCTCAAGCCCCCATCGTGGGACCAGATGTGG
 ATGGTTTGGTGGCACACGGATCCCGAGTTGGGAGGGTAGCACCCCTGGTCTACACC
 LysCysLeuIleArgLeuLysProThrLeuHisGlyProThrProLeuLeuTyrrArgLeu
 121 AAGTGTGTTGATTCGCCCTCAAGGCCAACCCCCCATGGCCAAACACCCCTGCTTACAGACTG
 TTCACAAACTAAGCCGAGTTGGGTACCCGGTACGGGAGCTATGGGACGGATATGTCTGAC
 GlyAlaValGlnAsnGluIleThrLeuThrHisProValThrLysTyrrIleMetThrCys
 181 GGGCTGTTCAGAAATGAAATCACCTGACGCCACCCAGTCACCAAAATACATGACATGC
 CCGCGACAAGTCTTACTTTAGTGGGACTGGGTCACTGGTCAAGTGGTTATGTAGTACTGTACG
 MetSerAlaAspLeuGluValValThrSerThrTrpValLeuValGlyValLeuAla
 241 ATGTCGGCGACCTGGAGGTCTCACGAGCACCTGGGTCACTGGGACCCACGAGCAACGCCG
 TACAGCCGGCTGGACCTCCAGCAGTGTGGACCCAGTCAGTGTGGACCCAGTGTACCG
 AlaLeuAlaAlaIleThrCysLeuSerThrGlyCysValValIleValGlyArgValLeu
 301 GCTTGGCCGGTATTGCTCAACAGGCTGCGTGGTCATAGTGGCAGGGCACCAGTATCACCG
 CGAAACCGGGCATAACGGACAGTTGTCGGACCGCACCAGTACCCGTCCAGCAGAAC

-----Overlap with 81-----

SerGlyLysProAlaIleLeuProAspArgGluValLeuTyrrArg
 361 TCCGGAAAGCCCCGCAATTACCTGACAGGGAAAGTCCTCTACCGAG
 AGCCCCCTTGGCCCCCTTAAGTATGGACTNGTCCAGGAGATGGCTC



FIG. 6

1 AspAlaHisPheLeuSerGlnThrLysGlnSerGlyGluAsnLeuProTyrLeuValAla
1 GATGCCCACTTCTATCCCAGACAAAGCAGAGTGGGGAGAACCTTCTTACCTGGTAGCG
CTACGGGTGAAAGATAGGGTCTGTTCTCACCCCTTGGAAAGGAATGGACCATCGC

61 TyrGlnAlaThrValCysAlaArgAlaGlnAlaProProProSerTrpAspGlnMetTrp
61 TACCAAGCCACCGTGTGCGCTAGGGCTCAAGCCCCTCCCCATCGTGGGACCAAGATGTGG
ATGGTTGGTGGCACACCGCATTGGAGTTGGGGAGGGTAGCACCCCTGGTCTACACC

121 LysCysLeuIleArgLeuLysProThrLeuHisGlyProThrProLeuLeuTyrArgLeu
121 AAGTGTGATTGCCTCAAGCCCACCCCTCCATGGGCCAACACCCCTGCTATACAGACTG
TTCACAAACTAACGGAGTCGGTGGGAGGTACCCGGTTGTGGGACGATATGTCTGAC

181 GlyAlaValGlnAsnGluIleThrLeuThrHisProValThrLysTyrIleMetThrCys
181 GGCCTGTTCAAGAATGAAATCACCTGACGCACCCAGTCACCAAATACATCATGACATGC
CCCGACAAAGTCTACTTAGGGACTGCGTGGTCAGTGGTTATGTAGTACTGTACG

241 MetSerAlaAspLeuGluValValThrSerThrTrpValLeuValGlyGlyValLeuAla
241 ATGTCGGCCGACCTGGAGGTGTCACGAGCACCTGGGTGCTCGTTGGCGGCGTCTGGCT
TACAGCCGGCTGGACCTCCAGCAGTGCAGTCGACCCACGAGCAACCGCCGAGGACCGA

301 AlaLeuAlaAlaTyrCysLeuSerThrGlyCysValValIleValGlyArgValValLeu
301 GCTTTGGCCCGTATTGCCTGTCAACAGGCTGCGTGGTCATAGTGGGAGGGTCGTTG
CGAAACCGGCGATAACGGACAGTTGTCGACCCAGTATCACCGTCCCAGCAGAAC

361 SerGlyLysProAlaIleIleProAspArgGluValLeuTyrArgGluPheAspGluMet
361 TCCCGGAAGCCGCAATCATACCTGACAGGGAAAGTCCTCTACCGAGAGTTGATGAGATG
AGGCCCTCGGCCGTTAGTATGGACTGTCCCTCAGGAGATGGCTCTCAAGCTACTCTAC

421 GluGluCysSerGlnHisLeuProTyrIleGluGlnGlyMetMetLeuAlaGluGlnPhe
421 GAAGAGTGCTCTCAGCACTTACCGTACATCGAGCAAGGGATGATGCTCGCCGAGCAGTTC
CTTCTCACGAGAGTCGTGAATGGCATGTAGCTCGTCCCTACTACCGAGCGGCTCGTCAAG

481 LysGlnLysAlaLeuGlyLeuLeuGlnThrAlaSerArgGlnAlaGluValIleAlaPro
481 AAGCAGAAAGGCCCTGGCCTCCTGAGACCGCGTCCCGTCAGGCAGAGGTTATGCCCT
TTCGTCTCCGGAGCCGGAGGACGTCTGGCGCAGGGCAGTCCGTCTCAAATAGCGGGGA

541 AlaValGlnThrAsnTrpGlnLysLeuGluThrPheTrpAlaLysHisMetTrpAsnPhe
541 GCTGTCCAGACCAACTGGCAAAACTCGAGACCTCTGGCGAAGCATATGTGGAACCTC
CGACAGGTCTGGTTGACCGTTTGAGCTCTGGAAGACCCGCTCGTATAACACCTGAAG

601 IleSerGlyIleGlnTyrLeuAlaGlyLeuSerThrLeuProGlyAsnProAlaIleAla
601 ATCAGTGGGATACAATACTTGGCGGGCTTGTCACGCTGCCTGGTAACCCGCCATTGCT
TAGTCACCCCTATGTTATGAACCGCCCCAACAGTTGCGACGGACCATTGGGGCGTAACGA

661 SerLeuMetAlaPheThrAlaAlaValThrSerProLeuThrThrSerGln
661 TCATTGATGGCTTTACAGCTGCTGTCACCAGCCACTAACCACTAGCCAAA
AGTAACCTACCGAAAAATGTCGACGACAGTGGTGGGTGATTGGTATCGGTTT



FIG. 7

-----Overlap with 81-----

1 PheThrAlaAlaValThrSerProLeuThrThrSerGlnThrLeuLeuPheAsnIleLeu
CTTTACAGCTGCTGTCACCAGCCCACTAACCACTAGCCAAACCTCCTCTCAACATAT .
GAAAATGTCGACGACAGTGGTCGGTGATTGGTATCGGTTGGGAGGAGAAGTTGTATA

61 GlyGlyTrpValAlaAlaGlnLeuAlaAlaProGlyAlaAlaThrAlaPheValGlyAla
TGGGGGGGGTGGGTGGCTGCCAGCTCGCCGCCCGGTGCCGCTACTGCCTTGTGGCG
ACCCCCCCCACCCACCCACGGACGGGTCGAGCGGCCGGGACGGCGATACGGAAACACCCGC

121 GlyLeuAlaGlyAlaAlaIleGlySerValGlyLeuGlyLysValLeuIleAspIleLeu
CTGGCTTAGCTGGCGCCGCATCGGCAGTGGACTGGGAAGGTCCCTCATAGACATCC
GACCGAATCGACCGCGCGGTAGCCGTACAACCTGACCCCTCAGGAGTATCTGTAGG

181 AlaGlyTyrGlyAlaGlyValAlaGlyAlaLeuValAlaPheLysIleMetSerGlyGlu
TTGCAGGGTATGGCGCGGGCGTGGCGGGAGCTCTTGTGGCATTCAAGATCATGAGCGGTG
AACGTCCCATAACCGCGCCCGACCGCCCTCGAGAACACCGTAAGTTCTAGTACTGCCAC

241 ValProSerThrGluAspLeuValAsnLeuLeuProAlaIleLeuSerProGlyAlaLeu
AGGTCCCCCTCCACGGAGGACCTGGTCAATCTACTGCCGCCATCCTCTCGCCCGAGCCC
TCCAGGGGAGGTGCCTCCTGGACCAGTTAGATGACGGCGGTAGGAGAGCGGGCCTCGGG

301 ValValGlyValValCysAlaAlaIleLeuArgArgHisValGlyProGlyGluGlyAla
TCGTAGTCGGCGTGGTCTGTGCAGCAATACTGCCGCCACGTTGGCCGGCGAGGGGG
AGCATCAGCCGCACCAGACACGTCGTTATGACGCCGTGCAACCGGGCCGCTCCCCC

361 ValGlnTrpMetAsnArgLeuIleAlaPheAlaSerArgGlyAsnHisValSer
CACTGCAGTGGATGAACCGGCTGATAGCCTTCGCTCCGGGGAACCATGTTCCCC
GTCACGTCACCTACTTGGCCGACTATCGGAAGCGGAGGGCCCCCTGGTACAAAGGGG



FIG. 8A

Ser Ile Glu Thr Ile Thr Leu Pro Gln Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg
1 TCC ATT GAG ACA ATC ACC CCT CCC CAG GAT GG CT GCT CCG CACT CA AC GT CG GGT C CT AC GAG GGG GT GAG T GCA GGC C C G T CC
AGG TAA CT C T G T TAG T GCG AGGG GTC CCT AC GAG CAG GGT GAG T GCA GGC C C G T CC
Thr Gly Arg G1 Y Lys Pro G1 Y Phe Val Ala Pro G1 Y Glu Arg Pro Ser G1 Y
61 ACT TGG CAG GGG G A G G C A G G C A T C T A C A G A T T T G T G G C A C C G G G G A G G C C C C T C C G G C C
TG ACC CG T C C C C C T T C G G T C C G T A G A T G T C T A A A C A C C G T G G C C C C T C G G G G A G G C C G
Met Phe Asp Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Ile Trp Tyr Glu Ile
121 ATG T T C G A C T C G T C C G T C C T G T G A C T G C T A T G A C G C A G G C A C T C A C G A T A C T G C G A G
T A C A A G G C T G A G C A G G C A G G A C A C T C A C G A T A C T G C G G T C C G A C A C G M A C C A T A C T C G A G
Thr Pro Ala Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro G1 Y Leu Pro Val
181 A C G C C C G C C G A G A C T A C A G G C T A C G A G G C T A C T G A A C A C C C G G C T T C C C G T G
T G C G G G G G C T C T G A T G T C A A T C C G A T G C T C G C A T G T A C T T G T G G C A T G C A A T C C G A A G G G C A C



FIG. 8B

CysGlnAspHisLeuGluPheTrpGluglyValPheThrGlyLeuThrHisIleAspAla
241 TGCCAGGACCATCTGAATTGGAGGGTCTTACAGGCCACTCATATAGATGCC
ACGGTCCCTGGTAGAACTTAAACCCCTCCCGAGAAATGTCCGGAGTGAGTATCTACGG

HisPheLeuSerGlnThrLysGlnSerGlyGluAsnLeuProTyRLeuValAlaTyRGLn
301 CACTTCTATCCCAGACAAAGCAGAGTGGGGAGAACCTTCCTTACCTGGTAGCGTACCAA
GTGAAAGATAGGGTCTGTTCGTCTCACCCCTCTGGAAAGGAATGGACCATGGCATGGT

-----Overlap with 36-----

AlaThrValCysAlaArgAlaGlnAlaProProProSerTrpAspGlnMetTrpLysCYS
361 GCCACCCGTGTGGCTTAGGGCTCAAGCCCCATCGTGGGACCAGATGTGGAAGTGT
CGGTGGCACACGGGATCCCGAGTTGGGGTAGCACCCCTGGTCTACACCTTCACA

LeuIleArgLeuLysProThrLeuHisGlyProThrProLeuIleTyRArgLeuGlyAla
421 TGATTGGCCTCAAGCCCCACCCCTCCATGGCCAACACCCCTGCTATACAGACTGGGGCT
AACTAAGCGGAGTTGGGGAGGTACCCGGTGTGGGACGATATGTCTGACCCGGGA

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FIG. 9A

1 SerIleGluThrIleThrLeuProGlnAspAlaValSerArgThrGlnArgArgGlyArg
1 TCCATTGAGACAATCACGCTCCCCCAGGATGCTGTCTCCGCACTCAACGTCGGGGCAGG
AGGTAACCTCTGTTAGTGCAGGGGGTCTACGACAGAGGGCGTGAGTTGCAGCCCCGTCC
61 ThrGlyArgGlyLysProGlyIleTyrArgPheValAlaProGlyGluArgProSerGly
61 ACTGGCAGGGGGAAAGCCAGGCATCTACAGATTGTGGCACCGGGGGAGCGCCCTCCGGC
TGACCGTCCCCCTCGGTCCGTAGATGTCTAACACACCGTGGCCCCCTCGCGGGGAGGCCG
121 MetPheAspSerSerValLeuCysGluCysTyrAspAlaGlyCysAlaTrpTyrGluLeu
121 ATGTTCGACTCGTCCGTCTGTGAGTGCTATGACGCAGGCTGTGCTTGGTATGAGCTC
TACAAGCTGAGCAGGCAGGAGACACTCACGATACTGCCTCCGACACGAACCATACTCGAG
181 ThrProAlaGluThrThrValArgLeuArgAlaTyrMetAsnThrProGlyLeuProVal
181 ACGCCCAGCAGACTACAGTTAGGCTACGAGCGTACATGAACACCCCGGGCTTCCCGTG
TGCAGGGGGCTCTGATGTCATCCGATGCTCGCATGTACTTGTGGGGCCCCGAAGGGCAC
241 CysGlnAspHisLeuGluPheTrpGluGlyValPheThrGlyLeuThrHisIleAspAla
241 TGCCAGGACCATCTGAATTGGGAGGGCGTCTTACAGGCCTCACTCATATAGATGCC
ACGGTCCTGGTAGAACCTAAACCCCTCCCGCAGAAATGTCCGGAGTGAGTATATCTACGG
301 HisPheLeuSerGlnThrLysGlnSerGlyGluAsnLeuProTyrLeuValAlaTyrGln
301 CACTTCTATCCCAGACAAAGCAGAGTGGGGAGAACCTCCCTACCTGGTAGCGTACCAA
GTGAAAGATAAGGTCTGTTCTCACCCCTTGGAAAGGAATGGACCATCGCATGGTT
361 AlaThrValCysAlaArgAlaGlnAlaProProProSerTrpAspGlnMetTrpLysCys
361 GCCACCGTGTGCGCTAGGGCTCAAGCCCCTCCCCATCGTGGGACCAAGATGTGGAAGTGT
CGGTGGCACACGCGATCCCGAGTTCTGGGGAGGGGTAGCACCCCTGGTCTACACCTTCACA
421 LeuIleArgLeuLysProThrLeuHisGlyProThrProLeuLeuTryArgLeuGlyAla
421 TTGATTGCCTCAAGCCCACCCCTCATGGGCCAACACCCCTGCTATACAGACTGGCGCT
AACTAACGCGGAGTTGGGAGGTACCCGGTTGTGGGAGCATATGTCTGACCCCGCGA
481 ValGlnAsnGluIleThrLeuThrHisProValThrLysTyrIleMetThrCysMetSer
481 GTTCAGAAATGAAATCACCTGACGCACCCAGTCACCAAATACATCATGACATGCGATGTCG
CAAGTCTTACTTAGTGGGACTGCGTGGGTCACTGGTTATGTAGTACTGTACGTACAGC
541 AlaAspLeuGluValValThrSerThrTrpValLeuValGlyGlyValLeuAlaAlaLeu
541 GCCGACCTGGAGGTGTCACGAGCACCTGGGTGCTCGTGGCGCGTCTGGCTGCTTTG
CGGCTGGACCTCCAGCAGTGTGTCGTGGACCCACGAGCAACCGCCGAGGACCGACGAAAC
601 AlaAlaTyrCysLeuSerThrGlyCysValValIleValGlyArgValValLeuSerGly
601 GCGCGTATTGCCTGTCAACAGGCTGCGTGGTCATAGTGGGCAGGGTCGTCTGTCCGGG
CGCGCATAACGGACAGTTGTCGACGCACCAAGTATCACCGTCCAGCAGAACAGGCC
661 LysProAlaIleIleProAspArgGluValLeuTyrArgGluPheAspGluMetGluGlu
661 AAGCCGGCAATCATACCTGACAGGGAAAGTCCTCTACCGAGAGTTGATGAGATGGAAGAG
TTCGGCCGTTAGTATGGACTGTCCTCAGGAGATGGCTCTCAAGCTACTCACCTTC
721 CysSerGlnHisLeuProTyrIleGluGlnGlyMetMetLeuAlaGluGlnPheLysGln
721 TGCTCTCAGCACTTACCGTACATCGAGCAAGGGATGATGCTCGCCGAGCAGTTCAAGCAG
ACGAGAGTCGTGAATGGCATGTAAGCTCGTCCCTACTACGAGCGGCTCGTCAAGTTGTC
781 LysAlaLeuGlyLeuLeuGlnThrAlaSerArgGlnAlaGluValIleAlaProAlaVal
781 AAGGCCCTGGCCTCTGCAGACCGCGTCCCGTCAGGCAGAGGTTATGCCCTGCTGTC
TTCCGGGAGCCGGAGGACGTCTGGCGCAGGGCAGTCCGTCTCAATAGCGGGGACGACAG

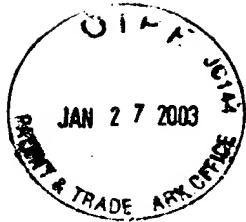


FIG. 9B

841 GlnThrAsnTrpGlnLysLeuGluThrPheTrpAlaLysHisMetTrpAsnPheIleSer
CAGACCAACTGGCAAAAACCTCGAGACCTTCTGGCGAAGCATATGTGGAACCTTCATCAGT
GTCTGGTTGACCGTTTGAGCTCTGGAAGACCCGCTTCGTATACACCTTGAAGTAGTCA

901 GlyIleGlnTyrLeuAlaGlyLeuSerThrLeuProGlyAsnProAlaIleAlaSerLeu
GGGATACAATACTTGGCGGGCTTGTCAACGCTGCCCTGGTAACCCGCCATTGCTTCATTG
CCCTATGTTATGAACCGCCCCAACAGTTGCGACGGACCATTGGGCGGTAAACGAAGTAAC

961 MetAlaPheThrAlaAlaValThrSerProLeuThrThrSerGlnThrLeuLeuPheAsn
ATGGCTTTTACAGCTGCTGTCAACCAGCCCCTAACCACTAGCAAACCCCTCTTCAAC
TACCGAAAATGTCGACGACAGTGGTCGGGTGATTGGTATCGGTTGGGAGGACAAGTTG

1021 IleLeuGlyGlyTrpValAlaAlaGlnLeuAlaAlaProGlyAlaAlaThrAlaPheVal
ATATTGGGGGGGTGGGTGGCTGCCAGCTGCCGCCCCCGGTGCCGCTACTGCCCTTG
TATAACCCCCCCCACCCACCGACGGGTCGAGCGGCGGGGCCACGGCGATGACGGAAACAC

1081 GlyAlaGlyLeuAlaGlyAlaAlaIleGlySerValGlyLeuGlyLysValLeuIleAsp
GGCGCTGGCTTAGCTGGCGCCATCGGCAGTGTGGACTGGGAAGGTCTCATAGAC
CCGCGACCGAACATCGACCGCGCCGGTAGCCGTACAACCTGACCCCTTCAGGAGTATCTG

1141 IleLeuAlaGlyTyrGlyAlaGlyValAlaGlyAlaLeuValAlaPheLysIleMetSer
ATCCTTGAGGGTATGGCGCGGCGTGGCGGGAGCTCTGTGGCATTCAAGATCATGAGC
TAGGAACGTCCCATAACCGCGCCCGACCGCCCTCGAGAACACCGTAAGTTCTAGTACTCG

1201 GlyGluValProSerThrGluAspLeuValAsnLeuLeuProAlaIleLeuSerProGly
GGTGAGGTCCCCCTCCACGGAGGACCTGGTCAATCTACTGCCGCCATCCTCTGCCCGGA
CCACTCCAGGGGAGGGTGCCTCTGGACCAGTTAGATGACGGCGGTAGGAGAGCGGGCCT

1261 AlaLeuValValGlyValValCysAlaAlaIleLeuArgArgHisValGlyProGlyGlu
GCCTCGTAGTCGGCGTGGTCTGTGCAGCAATACTGCGCCGCACGTTGGCCCGGGCGAG
CGGGAGCATTAGCCGCACCAAGACACGTCGTTATGACGCCGTGCAACCGGGCCGCTC

1321 GlyAlaValGlnTrpMetAsnArgLeuIleAlaPheAlaSerArgGlyAsnHisValSer
GGGGCAGTGCAGTGGATGAACCGGGCTGATAGCCTCGCCCTCCGGGGAACCATGTTTCCC
CCCCGTACGTCACCTACTTGGCCGACTATCGGAAGCGGAGGGCCCCCTGGTACAAAGGGG



FIG. 10

LeuAlaAlaLysLeuValAlaLeuGlyIleAsnAlaValAlaTyrArgGlyLeuAsp
1 CTCGGCCAAAGCTGGTCGCAATTGGGCATCAATGCCGTGGCTACTACCGGGTCTTGAC
GAGGGCGTTCGACCAGCTAACCGTAGTTACGGCACCCGGATGATGGCCAGAACTG

ValSerValIleProThrSerGlyAspValValValAlaThrAspAlaLeuMetThr
61 GTGTCGGTCATCCGGACCAAGGGCGATGTTGTCGTCGATGCCGATGCCCTCATGACC
CACAGGCCAGTAGGGCTGGCTGGCTGGCTACAAACAGCAGCACCGAACACTGAGTGGACTGG

GLYTYrThrGlyAspPheAspSerValIleAspTYrAsnThrCysValThrGlnThrVal
121 GGCTATAACGGCGACTTCGACTCGGTGATAGACTACAATAACGTGTGTCACCCAGACAGTC
CCGATATGGCCGGCTGAAGCTGAGCCACTATCTGATGTTATGCACACAGTGGTCTGTCA

-----Overlap with
AspPheSerIleAspProThrPheThrIleGluThrIleThrLeuProGlnAspAlaVal
181 GATTCAAGCCTTGACCCCTACTTCACCCATTGAGACAATCACGGCTCCCCAGGGATGCTGTC
CTAAAGTCGGAACGGATGGAAGTGGTAACTCTGTTAGTGGAGGGGGTCTACGACAG

clone 35-----
SerArgThrGlnArgArgGlyArgThr
241 TCCCCCACTAACGTCGGGGCAGGAACTGAGTGGTAACTCTGTTAGTGGAGGGGGTCTACGACAG



FIG. 11

-----Overlap with 32-----

1 MetAsnArgLeuIleAlaPheAlaSerArgGlyAsnHisValSerProThrHisTyrVal
GATGAACCGGGCTGATAGCCTCGCCTCCGGGGGAACCATGTTCCCCCACGCACCTACGT
CTACTTGGCCGACTATCGGAAGCGGAGGGCCCCCTGGTACAAAGGGGGTGCCTGATGCA

61 ProGluSerAspAlaAlaAlaArgValThrAlaIleLeuSerSerLeuThrValThrGln
GCCGGAGAGCGATGCAGCTGCCCGCGTCACTGCCTACTCAGCAGCCTCACTGTAACCCA
CGGCCTCTCGCTACGTCGACGGCGCAGTGACGGTATGAGTCGTCGGAGTGACATTGGGT

121 LeuLeuArgArgLeuHisGlnTrpIleSerSerGluCysThrThrProCysSerGlySer
GCTCCTGAGGCGACTGCACCACTGGATAAGCTGGAGTGTACCACTCCATGCTCCGGTTTC
CGAGGACTCCGCTGACGTGGTCACCTATTGAGCCTCACATGGTGAGGTACGAGGCCAAG

181 TrpLeuArgAspIleTrpAspTrpIleCysGluValLeuSerAspPheLysThrTrpLeu
CTGGCTAAGGGACATCTGGACTGGATATGCGAGGTGTTGAGCGACTTAAGACCTGGCT
GACCGATTCCCTGTAGACCCCTGACCTATACGCTCCACAACTCGCTGAAATTCTGGACCGA

241 LysAlaLysLeuMetProGlnLeuProGlyIleProPheValSerCysGlnArgGlyTyr
AAAAGCTAAGCTCATGCCACAGCTGCCCTGGATCCCCTTGTGTCCGCCAGCGCGGGTA
TTTCGATTCGAGTACGGTGTGACGGACCCCTAGGGGAAACACAGGACGGTCGCGCCCCAT

301 LysGlyValTrpArgVal
TAAGGGGGTCTGGCGAGTG
ATTCCCCCAGACCGCTCAC



1 AlaTyrMetSerLysAlaHisGlyIleAspProAsnIleArgThrGlyValArgThrIle
 GCTTACATGGCTCAAGGCTCATGGATCCTAACATCAGGACCGGGTGGAGAACAT
 CCGAATGTACAGGTTCCGAGTACCCTAGCTAGGATTAGCTAGGTAA

 61 ThrThrGlySerProIleThrTyrSerThrTyrGlyLysPheLeuAlaAspGlyGlyCys
 TACCACTGGCAGCCCCATACGTACTCCACCTAACGTAAGTTCCCTGCGGCTG
 ATGGTGAACCGTGGGTAGTGGCATGAGGTGGATGGCTAACAGGAACGGCTACCTGGTAA

 121 SerGlyGlyAlaIleCysAspGluCysHisSerThrAspAlaThrSer
 CTCGGGGGGCGCTATGACATAATAATTGGTGAAGTGCACACTCCACGGATGCCACATC
 GAGCCCCCGCCGAAATACTGATTATAAACACTGCTCACGGTGAGGTGCTAACGGTAG

 181 IleLeuGlyIleGlyThrValLeuAspGlnAlaGluThrAlaGlyAlaArgLeuValVal
 CATCTTGGCATTGGCACTGTCTTGACCAAGCAGAGACTGCGGGGGCGAGACTGGTGT
 GTAGAACCCGTAGCCGTGACAGGAACCTGGTTCGTTCTGACGGCCCCCGCTCTGACCAACA
 LeuAlaThrAlaThrProProGlySerValThrValProHisProAsnIleGluGluVal
 GCTCGCCACCGCCACCCCTCCGGCTCCGTCACTGTGCCCCATCCCAACATCGAGGAGGT
 CGAGCGGTGGGGTGGGGAGGCCCCAGGGCAAGTGAACACGGGGTAGGGTTAGCTCCTCCA
 AlaLeuSerThrThrGlyGluIleProPheTyrGlyLysAlaIleProLeuGluValIle
 TGCTCTGTCCACCACGGAGATCCCTTTACGGCAAGGCTATCCCCTCGAAGTAAAT
 ACGAGACAGGGTGGCCTCTAGGGAAAAATGCCGTTCCGATAGGGGAGCTTCATTA

 361 LysGlyGlyArgHisLeuIlePheCysHisSerLysLysLysCysAspGluLeuAlaAla
 CAAGGGGGAGACATCTCATCTGTCAATTCAAGAAGAAGTGCAGGAACACTGCCGC
 GTTCCCCCTCTGTAGAGTAGAAGACAGTAAGTTCTTCACGCTGCTTGAGGGCG

 421 -----Overlap with 37b-----
 LysLeuValAlaIleAsnAlaValAlaTyrTyrArgGlyIleAspValSerVal
 AAGCTGGTGGCATTTGGCATCAATGGCTGGCTGGCTACTACCGGGTCTTGACGTTGTCGT
 TTTGACCAAGCGTAACCCGTAGTTACGGCACCCGATGATGGCCAGAACACGGCA

 481 IleProThr
 CATCCCGACCAAG
 GTAGGGCTGGTC

FIG. 12



FIG. 13

 1 CysSerLeuThrValThrGlnLeuLeuArgArgLeuHisGlnTrpIleSerSerGluCys
 ACTGCAGCCTCACTGTAACCCAGCTCCTGAGGCAGTCACCAGTGGATAAGCTCGGAGT
 TGACGTCGGAGTGACATTGGGTCGAGGACTCCGCTGACGTGGTCACCTATTGAGCCTCA

 61 ThrThrProCysSerGlySerTrpLeuArgAspIleTrpAspTrpIleCysGluValLeu
 GTACCACTCCATGCTCCGGTCTGGCTAAGGGACATCTGGACTGGATATGCGAGGTGT
 CATGGTGAGGTACGAGGCCAAGGACCGATTCCCTGTAGACCTATACGCTCCACA.
 -----Overlap with 33b-----
 121 SerAspPheLysThrTrpLeuLysAlaLysLeuMetProGlnLeuProGlyIleProPhe
 TGAGCGACTTTAACGACCTGGCTAAAAGCTAACGCTCATGCCACAGCTGCCCTGGGATCCCT
 ACTCGCTGAAATTCTGGACCGATTTCGATTGAGTACGGTGTGACGGGACCCCTAGGGGA

 181 ValSerCysGlnArgGlyTyrLysGlyValTrpArgGlyAspGlyIleMetHisThrArg
 TTGTGTCCTGCCAGCGCGGGTATAAGGGGGTCTGGCAGGGACGGCATCATGCACACTC
 AACACAGGACGGTCGCCCATATTCCCCCAGACCGCTCCCTGCCGTAGTACGTGTGAG
 241 CysHisCysGlyAlaGluIleThrGlyHisValLysAsnGlyThrMetArgIleValGly
 GCTGCCACTGTGGAGCTGAGATCACTGGACATGTCAAAACGGGACGATGAGGATCGTCG
 CGACGGTGACACCTCGACTCTAGTGAACCTGTACAGTTTGGCCCTGCTACTCCTAGCAGC
 301 ProArgThrCysArgAsnMetTrpSerGlyThrPheProIleAsnAlaTyrThrThrGly
 GTCCTAGGACCTGCAAGAACATGTGGAGTGGACCTTCCCCATTAATGCCCTACACCACGG
 CAGGATCCTGGACGTCCCTGTACACCTCACCCCTGGAAGGGTAATTACGGATGTGGTGCC
 361 ProCysThrProLeuProAlaProAsnTyrThrPheAlaLeuTrpArgValSerAlaGlu
 GCCCTGTACCCCCCTTCTGCCCGAACATACACGTTCGCGCTATGGAGGGTGTCTGCAG
 CGGGGACATGGGGGGAAAGGACGCCGCTTGATGTGCAAGCGCGATACCTCCCACAGCGTC
 421 GluTyrValGluIleArgGlnValGlyAspPheHisTyrValThrGlyMetThrThrAsp
 AGGAATATGTGGAGATAAGGCAGGTGGGGACTTCCACTACGTGACGGGTATGACTACTG
 TCCTTATACACCTCTATTCCGCCACCCCTGAAGGTGATGCACTGCCACTGTGATGAC
 481 AsnLeuLysCysProCysGlnValProSerProGluPhePheThrGlu
 ACAATCTCAAATGCCGTGCCAGGTCCCATGCCCGAATTTTACAGAAT
 TGTAGAGTTACGGGCACGGTCCAGGGTAGCGGGCTAAAAAGTGTCTTA

FIG. 14A

1 AlaTyrMetSerLysAlaHisGlyIleAspProAsnIleArgThrGlyValArgThrIle
 1 TGCTTACATGTCCAAGGCTCATGGGATCGATCCTAACATCAGGACCGGGGTGAGAACAAAT
 ACGAATGTACAGGTTCCGAGTACCCTAGCTAGGATTGTAGTCCTGGCCCCACTCTTGTAA

 61 ThrThrGlySerProIleThrTyrSerThrTyrGlyLysPheLeuAlaAspGlyGlyCys
 61 TACCACTGGCAGCCCCATCACGTACTCCACCTACGGCAAGTTCTGCCGACGGCGGGTG
 ATGGTGACCGTCGGGGTAGTGCATGAGGTGGATGCCGTTCAAGGAACGGCTGCCGCCAC

 121 SerGlyGlyAlaTyrAspIleIleIleCysAspGluCysHisSerThrAspAlaThrSer
 121 CTCGGGGGGCGCTTATGACATAATAATTGTGACGAGTGCCACTCCACGGATGCCACATC
 GAGCCCCCGCGAATACTGTATTATAACACTGCTCACGGTGGAGGTGCTACGGTGTAG

 181 IleLeuGlyIleGlyThrValLeuAspGlnAlaGluThrAlaGlyAlaArgLeuValVal
 181 CATCTTGGGCATCGGCACTGTCCTTGACCAAGCAGAGACTGCAGGGCGAGACTGGTTGT
 GTAGAACCCGTAGCCGTGACAGGAACGGTTCTGACGCCCGCTGACCAACA

 241 LeuAlaThrAlaThrProProGlySerValThrValProHisProAsnIleGluGluVal
 241 GCTCGCCACCGCCACCCCTCCGGGCTCCGTACTGTGCCCCATCCAAACATCGAGGAGGT
 CGAGCGGTGGCGGTGGGAGGGCCGAGGCAGTGACACGGGTAGGGTTGTAGCTCCTCCA

 301 AlaLeuSerThrThrGlyGluIleProPheTyrGlyLysAlaIleProLeuGluValIle
 301 TGCTCTGTCACCACCCGAGAGATCCCTTTTACGGCAAGGCTATCCCCCTCGAAGTAAT
 ACGAGACAGGTGGTGGCCTCTAGGGAAAAATGCCGTTCCGATAGGGGGAGCTTCATTA

 361 LysGlyGlyArgHisLeuIlePheCysHisSerLysLysCysAspGluLeuAlaAla
 361 CAAGGGGGGGAGACATCTCATCTCTGTCAATTCAAAGAAGAAGTGCACGAACTCGCCGC
 GTTCCCCCCTCTGTAGAGTAAAGACAGTAAGTTCTTCACGCTGCTTGAGCGCG

 421 LysLeuValAlaLeuGlyIleAsnAlaValAlaTyrTyrArgGlyLeuAspValSerVal
 421 AAAGCTGGTCGCATTGGGATCAATGCCGTGGCCTACTACCGCGGTCTTGACGTGTCCGT
 TTTGACCAAGCGTAACCGTAGTTACGGCACGGATGATGGGCCAGAACTGCACAGGCA

 481 IleProThrSerGlyAspValValValAlaThrAspAlaLeuMetThrGlyTyrThr
 481 CATCCCACCCAGCGCGATGTTGTCGTGGCAACCGATGCCCTCATGACCGGCTATAC
 GTAGGGCTGGTCGCCGCTACACAGCACCGTTGGCTACGGAGTACTGGCCGATATG

 541 GlyAspPheAspSerValIleAspTyrAsnThrCysValThrGlnThrValAspPheSer
 541 CGGCGACTTCGACTCGGTGATAGACTACAATACGTGTGTCACCCAGACAGTCGATTCAG
 GCCGCTGAAGCTGAGCCACTATCTGATGTTATGCACACAGTGGTCTGTCAGCTAAAGTC

 601 LeuAspProThrPheThrIleGluThrIleThrLeuProGlnAspAlaValSerArgThr
 601 CCTTGACCCCTACCTCACCATGGAGACAATCACGCTCCCCCAGGATGCTGTCTCCGCAC
 GGAACCTGGGATGGAAGTGGTAACTCTGTTAGTGCAGGGGGTCTACGACAGAGGGCGTG

 661 GlnArgArgGlyArgThrGlyArgGlyLysProGlyIleTyrArgPheValAlaProGly
 661 TCAACGTCGGGGCAGGACTGGCAGGGGGAGCCAGGCATCTACAGATTGTGGCACCGGG
 AGTTGCAGCCCCCTCTGACCGTCCCCCTCGGTCCGTAGATGTCTAAACACCGTGGCCC

 721 GluArgProSerGlyMetPheAspSerSerValLeuCysGluCysTyrAspAlaGlyCys
 721 GGAGCGCCCCCTCCGGCATGTTGACTCGTCCGTCTGTGAGTGTATGACGCAAGGCTG
 CCTCGCGGGGAGGCCGTACAAGCTGAGCAGGCAGGAGACACTCACGATACTGCGTCCGAC

 781 AlaTrpTyrGluLeuThrProAlaGluThrValArgLeuArgAlaTyrMetAsnThr
 781 TGCTTGGTATGAGCTACGCCCAGGACTACAGTTAGGCTACGAGCGTACATGAACAC
 ACGAACCATACTCGAGTGCGGCGGCTGTGATGTCATCCGATGCTCGCATGTACTTGTG

 841 ProGlyLeuProValCysGlnAspHisLeuGluPheTrpGluGlyValPheThrGlyLeu
 841 CCCGGGGCTCCCGTGTGCCAGGACCATCTTGAATTGGGAGGGCGTCTTACAGGCCT
 GGGCCCCGAAGGGCACACGGTCTGGTAGAACCTAAACCTCCGCAGAAATGTCCGGA



FIG. 14B

901 ThrHisIleAspAlaHisPheLeuSerGlnThrLysGlnSerGlyGluAspLeuProTyr
 CACTCATATAGATGCCCACTTCTATCCCAGACAAAGCAGAGTGGGGAGAACCTTCCTTA
 GTGAGTATATCTACGGGTGAAAGATAGGGTCTGTTCGTCAACCCCTCTTGGAAAGGAAT

961 LeuValAlaTyrGlnAlaThrValCysAlaArgAlaGlnAlaProProSerTrpAsp
 CCTGGTAGCGTACCAAGCCACCGTGTGCGCTAGGGCTCAAGCCCTCCCCATCGTGGGA
 GGACCATCGCATGGTTCGGTGGCACACCGGATCCCAGTTCGGGGAGGGGTAGCACCCCT

1021 GlnMetTrpLysCysLeuIleArgLeuLysProThrLeuHisGlyProThrProLeuLeu
 CCAGATGTGGAAGTGTGTTGATTGCGCTCAAGCCCACCCCTCCATGGGCAACACCCCTGCT
 GGTCTACACCTTCACAAACTAAGCGGAGTTGGGTGGGAGGTACCCGGTTGTGGGACGA

1081 TyrArgLeuGlyAlaValGlnAsnGluIleThrLeuThrHisProValThrLysTyrIle
 ATACAGACTGGGCGCTGTTCAAGAATGAAATCACCCCTGACGCAACCCAGTCACCAAATACAT
 TATGTCTGACCGCGACAAGTCTTACTTAGTGGGACTGCGTGGGTAGTGGTTATGTA

1141 MetThrCysMetSerAlaAspLeuGluValValThrSerThrTrpValLeuValGlyGly
 CATGACATGCATGTCGGCCGACCTGGAGGTGTCACGAGCACCTGGGTGCTCGTGGCG
 GTACTGTACGTACAGCCGGCTGGACCTCCAGCAGTGCCTGGACCCACGAGCAACCGCC

1201 ValLeuAlaAlaLeuAlaAlaTyrCysLeuSerThrGlyCysValValIleValGlyArg
 CGTCCTGGCTGCTTGGCCGCGTATTGCGCTGTCAACAGGCTGCGTGGTCATAGTGGCAG
 GCAGGACCGACGAAACCGGCGATAACGGACAGTTGTCGACGCACCAGTATCACCCGTC

1261 ValValLeuSerGlyLysProAlaIleIleProAspArgGluValLeuTyrArgGluPhe
 GGTGCTTTGTCGGGAAGCCGGCAATCATACCTGACAGGGAAAGTCCTTACCGAGAGTT
 CCAGCAGAACAGGCCCTCGGCCGTTAGTATGGACTGTCCTCAGGAGATGGCTCTCAA

1321 AspGluMetGluGluCysSerGlnHisLeuProTyrIleGluGlnGlyMetMetLeuAla
 CGATGAGATGGAAGAGTGCTCTCAGCACTTACCGTACATCGAGCAAGGGATGATGCTCGC
 GCTACTTACCTCTCACGAGAGTCGTGAATGGCATGTAGCTCGTCCCTACTACGAGCG

1381 GluGlnPheLysGlnLysAlaLeuGlyLeuLeuGlnThrAlaSerArgGlnAlaGluVal
 CGAGCAGTTCAAGCAGAAGGCCCTGGCCTCTGCAGACCGCGTCCCGTCAGGCAGAGGT
 GCTCGTCAAGTTCGTCTCCGGGAGCCGGAGGACGTCTGGCGCAGGGCAGTCCGTCTCCA

1441 IleAlaProAlaValGlnThrAsnTrpGlnLysLeuGluThrPheTrpAlaLysHisMet
 TATCGCCCTGCTGTCAGACCAACTGGCAAAACTCGAGACCTTCTGGGCGAAGCATAT
 ATAGCGGGGACGACAGGTCTGGTTGACCGTTTGAGCTCTGGAAAGACCGCTTCGTATA

1501 TrpAsnPheIleSerGlyIleGlnTyrLeuAlaGlyLeuSerThrLeuProGlyAsnPro
 GTGGAACTTCATCAGTGGGATACAATACTTGGCGGGCTTGTCAACGCTGCCTGGTAACCC
 CACCTGAAGTAGTCACCCATGTTATGAACCGCCGAACAGTTGCGACGGACCATTGGG

1561 AlaIleAlaSerLeuMetAlaPheThrAlaAlaValThrSerProLeuThrThrSerGln
 CGCCATTGCTTCATTGATGGCTTTACAGCTGCTGCAACAGCCACTAACCACTAGCCA
 GCGGTAACGAAGTAACCTACCGAAAATGTCGACGACAGTGGTCGGGTGATTGGTGATCGGT

1621 ThrLeuLeuPheAsnIleLeuGlyGlyTrpValAlaAlaGlnLeuAlaAlaProGlyAla
 AACCTCCTCTTCAACATATTGGGGGGGTGGGTGGCTGCCAGCTGCCGCCGGTGC
 TTGGGAGGAGAAGTTGTATAACCCCCCCCACCCACCGACGGGTCGAGCGGGCGGGGCCACG

1681 AlaThrAlaPheValGlyAlaGlyLeuAlaGlyAlaAlaIleGlySerValGlyLeuGly
 CGCTACTGCCTTGTGGCGCTGGCTTAGCTGGCGCCCATCGGCAGTGTGGACTGGG
 GCGATGACGGAAACACCCCGCGACCGAACATCGACCGCGGGTAGCCGTACAACCTGACCC

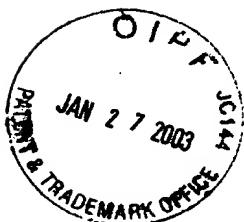


FIG. 14C

1741 LysValLeuIleAspIleLeuAlaGlyTyrGlyAlaGlyValAlaGlyAlaLeuValAla
 GAAGGTCCCTCATAGACATCCTTGCAGGGTATGGCGCGGGCGTGGCGGGAGCTCTTGTGGC
 CTTCCAGGAGTATCTGTAGGAACGTCCCATACCGCGCCCGACCAGCCCTCGAGAACACCG

1801 PheLysIleMetSerGlyGluValProSerThrGluAspLeuValAsnLeuLeuProAla
 ATTCAAGATCATGAGCGGTGAGGTCCCCCTCCACGGAGGACCTGGTCAATCTACTGCCCG
 TAAGTTCTAGTACTCGCCACTCCAGGGGAGGTGCCCTGGACCAGTTAGATGACGGCG

1861 IleLeuSerProGlyAlaLeuValValGlyValValCysAlaAlaIleLeuArgArgHis
 CATCCTCTCGCCCGAGCCCTCGTAGTCGGCGTGGTCTGTGCAGCAATACTGCGCCGGCA
 GTAGGAGAGCGGGCCTCGGGAGCATCAGCCGCACCAGACACGTCGTTATGACGCGGCCGT

1921 ValGlyProGlyGluGlyAlaValGlnTrpMetAsnArgLeuIleAlaPheAlaSerArg
 CGTTGGCCCGGGCGAGGGGGCAGTGCAGTGGATGAACCGGGCTGATAGCCTTCGCTCCCG
 GCAACCGGGCCCGCTCCCCCGTCACGTCACCTACTTGGCCGACTATCGGAAGCGGAGGGC

1981 GlyAsnHisValSerProThrHisTyrValProGluSerAspAlaAlaAlaArgValThr
 GGGGAACCATGTTCCCCCACGCACTACGTGCCGGAGAGCGATGCAGCTGCCGCTCAC
 CCCCTGGTACAAAGGGGGTGCCTGAGTGCACGGCCTCGCTACGTCGACGGCGCAGTG

2041 AlaIleLeuSerSerLeuThrValThrGlnLeuLeuArgArgLeuHisGlnTrpIleSer
 TGCCATACTCAGCAGCCTCACTGTAACCCAGCTCCTGAGGCAGTCACCAGTGGATAAG
 ACGGTATGAGTCGTCGGAGTGACATTGGTCGAGGACTCCGCTGACGTGGTCACCTATT

2101 SerGluCysThrThrProCysSerGlySerTrpLeuArgAspIleTrpAspTrpIleCys
 CTCGGAGTGTACCACTCCATGCTCCGGTTCTGGCTAAGGGACATCTGGACTGGATATG *
 GAGCCTCACATGGTGGAGGTACGAGGCCAAGGACCGATTCCCTGAGACCCCTGACCTATAC

2161 GluValLeuSerAspPheLysThrTrpLeuLysAlaLysLeuMetProGlnLeuProGly
 CGAGGTGTTGAGCGACTTTAAGACCTGGCTAAAGCTAAGCTCATGCCACAGCTGCCTGG
 GCTCCACAACTCGCTGAAATTCTGGACCGATTTCGATTGAGTACGGTGTGACGGACC

2221 IleProPheValSerCysGlnArgGlyTyrLysGlyValTrpArgValAspGlyIleMet
 GATCCCCTTGTGTCCTGCCAGCGCGGGTATAAGGGGGTCTGGCGAGTGGACGGCATCAT
 CTAGGGGAAACACAGGACGGTCGCGCCATATTCCCCAGACCGCTCACCTGCCGTAGTA

2281 HisThrArgCysHisCysGlyAlaGluIleThrGlyHisValLysAsnGlyThrMetArg
 GCACACTCGCTGCCACTGTGGAGCTGAGATCACTGGACATGTCAAAACGGGACGATGAG
 CGTGTGAGCGACGGTACACCTCGACTCTAGTACGTTGACCTGTACAGTTTGCCCTGCTACTC

2341 IleValGlyProArgThrCysArgAsnMetTrpSerGlyThrPheProIleAsnAlaTyr
 GATCGTCGGTCCTAGGACCTGCAGGAACATGTGGAGTGGGACCTCCCTTAATGCCTA
 CTAGCAGCCAGGATCTGGACGTCCTGTACACCTCACCTGGAAAGGGGTAATTACGGAT

2401 ThrThrGlyProCysThrProLeuProAlaProAsnTyrThrPheAlaLeuTrpArgVal
 CACCACGGGCCCCCTGTACCCCCCTTCTGCAGCCGAACATACGTTCGCGCTATGGAGGGT
 GTGGTGCCGGGACATGGGGGGAGGACGCGGCTTGTACGTGCAAGCGCGATACCTCCCA

2461 SerAlaGluGluTyrValGluIleArgGlnValGlyAspPheHisTyrValThrGlyMet
 GTCTGCAGAGGAATATGTGGAGATAAGGCAGGTTGGGGACTTCCACTACGTGACGGGTAT
 CAGACGTCTCCTTATACACCTCTATTCCGTCCACCCCTGAAGGTGATGCACGTCCCATA

2521 ThrThrAspAsnLeuLysCysProCysGlnValProSerProGluPhePheThrGlu
 GACTACTGACAATCTCAAATGCCCGTGCCTGCCAGGTCCACTGCCGAATTTCACAGAAT
 CTGATGACTGTTAGAGTTACGGGCACGGTCCAGGGTAGCGGGCTTAAAAAGTGTCTTA



FIG. 15

1 AlaValAspPheIleProValGluAsnLeuGluThrThrMetArgSerProValPheThr
 1 GGCGGTGGACTTATCCCTGTGGAGAACCTAGAGACAAACATGAGGTCCCCGGTGTTCAC
 CCGCCACCTGAAATAGGGACACCTCTTGGATCTCTGTTGGTACTCCAGGGGCCACAAGTG
 61 AspAsnSerSerProProValValProGlnSerPheGlnValAlaHisLeuHisAlaPro
 61 GGATAACTCCTCTCCACCAAGTAGTGCCTCAGAGCTTCCAGGTGGCTCACCTCATGCTCC
 CCTATTGAGGAGAGGGTGGTCAACGGGTCTCGAAGGTCCACCGAGTGGAGGTACGAGG
 121 ThrGlySerGlyLysSerThrLysValProAlaAlaTyrAlaAlaGlnGlyTyrLysVal
 121 CACAGGCAGCGGCAAAAGCACCAAGGTCCCAGGCTGCATATGCAGCTCAGGGCTATAAGGT
 GTGTCCGTCGCCGTTCTGGTCCAGGGCCGACGTACGTCGAGTCCCAGTATTCCA
 181 LeuValLeuAsnProSerValAlaAlaThrLeuGlyPheGlyAlaTyrMetSerLysAla
 181 GCTAGTACTCAACCCCTCTGGTCTGCAACACTGGGCTTGGTGCCTACATGTCCAAGGC
 CGATCATGAGTTGGGAGACAACGACGTTGTGACCCGAAACCACGAATGTACAGGTTCCG
 -----Overlap with 40b-----
 241 HisGlyIleAspProAsnIleArgThrGlyValArgThrIleThrThrGlySerProIle
 241 TCATGGGATCGATCTAACATCAGGACCGGGGTGAGAACAAATTACCAACTGGCAGCCCCAT
 AGTACCCTAGCTAGGATTGTAGTCCTGGCCCCACTCTGTTAACGGTACCGTCGGGGTA
 301 ThrTyrSerThrTyrGlyLysPheLeuAlaAspGlyGlyCysSerGlyGlyAlaTyrAsp
 301 CACGTACTCCACCTACGGCAAGTTCTGCCACGGCGGGGTGCTCGGGGGCGCTTATGA
 GTGCATGAGGTGGATGCCGTTCAAGGAACGGCTGCCACGAGCCCCCGCGAACACT
 361 IleIleIleCysAspGluCysHisSerThrAspAlaThrSerIleLeuGlyIleGlyThr
 361 CATAATAATTGTGACGAGTGCCTACGGATGCCACATCCATCTGGGCATTGGCAC
 GTATTATTAACACTGCTCACGGTGAGGTGCCTACGGTAGGTAGAACCCGTAACCGTG
 421 ValLeuAspGlnAlaGluThrAlaGlyAlaArgLeuValValLeuAlaThrAlaThrPro
 421 TGTCTTGACCAAGCAGAGACTGCAGGGGGCGAGAGACTGGTTGTGCTCGCCACCGCCACCC
 ACAGGAACCTGGTCGTCTCTGACGCCCGCTCTGACCAACACGAGCGGTGGCGGTGGGG
 481 ProGlySerValThrValProHisProAsnIleGluGluValAlaLeuSerThrThrGly
 481 TCCGGGCTCCGTCACTGTGCCCATCCAAACATCGAGGAGGTTGCTCTGTCACCACCGG
 AGGCCGAGGCAGTGACACGGGTAGGGTTGAGCTCCTCAACGAGACAGGTGGTGGCC
 541 GluIleProPheTyrGlyLysAlaIleProLeuGluValIleLysGlyGlyArgHisLeu
 541 AGAGATCCCTTTTACGGCAAGGCTATCCCCCTCGAAGTAATCAAGGGGGGAGACATCT
 TCTCTAGGGAAAAATGCCGTTCCGATAGGGGAGCTCATTAGTCCCCCTCTGTAGA
 601 IlePheCysHisSerLysLysCysAspGluLeuAlaAlaLysLeuValAlaLeuGly
 601 CATCTTCTGTCATTCAAAGAAGAAGTGCACGAACTCGCCGAAAGCTGGTGCATTGGG
 GTAGAAGACAGTAAGTTCTTCACGCTGCTTGAGCGGGCTTCGACCAGCGTAACCC
 661 IleAsnAlaValAlaTyrTyrArgGlyLeuAspValSerValIleProThrSerGlyAsp
 661 CATCAATGCCGTGGCTACTACCGCGGTCTTGACGTGTCCGTACCCGACCAGCGGCGA
 GTAGTTACGGCACCGGATGATGGCGCCAGAACACTGCACAGGCAGTAGGGCTGGTCGCCGCT
 721 ValValValValAlaThrAspAlaLeuMetThrGlyTyrThrGlyAspPheAspSerVal
 721 TGTGTCGTGGCAACCGATGCCCTCATGACCGGCTATACCGGCACCTCGACTCGGT
 ACAACAGCAGCACCGTTGGCTACGGGAGTACTGGCCGATATGGCGCTGAAGCTGAGCCA
 781 IleAspCysAsnThrCys
 781 GATAGACTGCAATACGTGTG
 CTATCTGACGTTATGCACAC



FIG. 16

1 ProCysThrCysGlySerSerAspLeuTyrLeuValThrArgHisAlaAspValIlePro
 1 CTCCCTGCACCTGGGGCTCCTCGGACCTTACCTGGTCACGAGGCACGCCGATGTCATT
 GAGGGACGTGAACGCCGAGGAGCCTGGAAATGGACCAGTGCTCCGTGCGGCTACAGTAAG
 ValArgArgArgGlyAspSerArgGlySerLeuLeuSerProArgProIleSerTyrLeu
 61 CCGTGCGCCGGCGGGGTGATAGCAGGGGCAGCCTGCTGTCGCCCCGCCATTTCCTACT
 GGCACGCCGCCGCCCCACTATCGTCCCCGTCGGACGACAGCGGGGCCGGTAAAGGATGA
 LysGlySerSerGlyGlyProLeuLeuCysProAlaGlyHisAlaValGlyIlePheArg
 121 TGAAAGGCTCCTCGGGGGTCCGCTGTTGTGCCCCGCGGGCACGCCGTGGCATATTAA
 ACTTTCCGAGGAGCCCCCAGGCGACAACACGGGGCGCCCCGTGCGGCACCGTATAAAT
 -----Overlap with
 181 AlaAlaValCysThrArgGlyValAlaLysAlaValAspPheIleProValGluAsnLeu
 GGGCCGCGGTGTGCACCCGTGGAGTGGCTAAGGCGGTGGACTTTATCCCTGTGGAGAAC
 CCCGGCGCACACGTGGCACCTCACCGATTCCGCCACCTGAAATAGGGACACCTCTTGG
 33C-----
 GluThrThrMetArgSerProValPheThrAspAsnSer
 241 TAGAGACAACCATGAGGTCCCCGGTGTTCACGGATAACTCTC
 ATCTCTGTTGGTACTCCAGGGGCCACAAGTGCCTATTGAGGAG

FIG. 17

1 GlyTrpArgLeuLeuAlaProIleThrAlaTyrAlaGlnGlnThrArgGlyLeuLeuGly
 1 GGGGTGGAGGTTGCTGGCGCCCATCACGGCGTACGCCAGCAGACAAGGGGCCCTCTAGG
 CCCCACCTCCAACGACCGCGGGTAGTGCCGCATGGGTCTGTGTTCCCCGGAGGATCC
 CysIleIleThrSerLeuThrGlyArgAspLysAsnGlnValGluGlyGluValGlnIle
 61 GTGCATAATCACCAAGCCTAACCTGGCCGGACAAAAAACAAGTGGAGGGTGAGGTCCAGAT
 CACGTATTAGTGGTCGGATTGACCGGCCCTGTTTGTTGTTCACCTCCACTCCAGGTCTA
 ValSerThrAlaAlaGlnThrPheLeuAlaThrCysIleAsnGlyValCysTrpThrVal
 121 TGTTCAACTGCTGCCAACCTTCCCTGGCAACGTGCATCAATGGGTGTGCTGGACTGT
 ACACAGTTGACGACGGGTTTGAAGGACCGTTGCACGTAGTTACCCACACGACCTGACA
 TyrHisGlyAlaGlyThrArgThrIleAlaSerProLysGlyProValIleGlnMetTyr
 181 CTACCACGGGGCCGGAACGAGGGACCATCGCGTACCCAAGGGTCTGTCATCCAGATGTA
 GATGGTGCCCCGGCCCTGCTCTGGTAGCGCAGTGGTTCCAGGACAGTAGGTCTACAT
 ThrAsnValAspGlnAspLeuValGlyTrpProAlaProGlnGlySerArgSerLeuThr
 241 TACCAATGTAGACCAAGACCTTGTGGCTGGCCCGCTCCGCAAGGTAGCCGCTCATTGAC
 ATGGTTACATCTGGTTCTGGAACACCGACCGGGCGAGGCCTTCCATCGCGAGTAACG
 -----Overlap with 8h-----
 ProCysThrCysGlySerSerAspLeuTyrLeuValThrArgHis
 301 ACCCTGCACCTGGGGCTCCTCGGACCTTACCTGGTCACGAGGCACG
 TGGGACGTGAACGCCGAGGAGCCTGGAAATGGACCAGTGCTCCGTGC





FIG. 18

1 AsnMetTrpSerGlyThrPheProIleAsnAlaTyrThrThrGlyProCysThrProLeu
GAACATGTGGAGTGGGACCTCCCCATTAAATGCCTACACCAACGGGCCCCGTACCCCCCT
CTTGTACACCTCACCCCTGGAAGGGTAATTACGGATGTGGTCCCCGGGGACATGGGGGA
-----Overlap with 25c-----
61 ProAlaProAsnTyrThrPheAlaLeuTrpArgValSerAlaGluGluTyrValGluIle
TCCTGCGCCGAACTACACGTTGCGCTATGGAGGGTGTCTGCAGAGGAATACGTGGAGAT
AGGACGCGGCTTGATGTCAAGCGCGATACCTCCCACAGACGTCTCCTATGCACCTCTA
121 ArgGlnValGlyAspPheHisTyrValThrGlyMetThrThrAspAsnLeuLysCysPro
AAGGCAGGTGGGGGACTTCCACTACGTGACGGGTATGACTACTGACAATCTAAATGCC
TTCCTGCCACCCCTGAAGGTGATGCACTGCCACTACTGATGACTGTTAGAATTACGGG
181 CysGlnValProSerProGluPhePheThrGluLeuAspGlyValArgLeuHisArgPhe
GTGCCAGGTCCCATGCCGAATTTTACAGAATTGGACGGGGTGCCTACATAGGTT
CACGGTCCAGGGTAGCGGGCTTAAAGTGTCTAACCTGCCACGCGGATGTATCCAA
241 AlaProProCysLysProLeuLeuArgGluGluValSerPheArgValGlyLeuHisGlu
TGCGCCCTTGCAAGCCCTGCTGCGGGAGGAGGTATCATTAGAGTAGGACTCCACGA
ACGGGGGGACGTTGGAACGACGCCCTCCATAGTAAGTCTCATCCTGAGGTGCT
301 TyrProValGlySerGlnLeuProCysGluProGluProAspValAlaValLeuThrSer
ATACCCGGTAGGGTCGCAATTACCTTGCAGGCCGAACCGGACGTGGCGTGGACGTC
TATGGGCCATCCCAGCGTTAATGGAACGCTGGGCTTGGCCTGCACCGGACAACACTGCAG
361 MetLeuThrAspProSerHisIleThrAlaGluAlaAlaGlyArgArgLeuAlaArgGly
CATGCTCACTGATCCCTCCCATAAACAGCAGAGGGCGGGGGCGAAGGTTGGCGAGGGG
GTACGAGTACTAGGGAGGTATATTGTCGTCCGCCGGCCGCTTCCAACCGCTCCCC
421 SerProProSerValAlaSerSerSerAlaSerGlnLeuSerAlaProSerLeuLysAla
ATCACCCCTCTGTTGCCAGCTCCTGGCTAGCCAGCTATCCGCTCCATCTCTCAAGGC
TAGTGGGGGGAGACACCGGTCGAGGAGCCGATGGTCGATAGCGAGGTAGAGAGTTCCG
481 ThrCysThrAlaAsnHisAspSerProAsp
AACTTGACCGCTAACCATGACTCCCCGTAT
TTAACGTGGCGATTGGTACTGAGGGGACTA



FIG. 19

-----Overlap with 14c-----

1 SerSerSerAlaSerGlnLeuSerAlaProSerLeuLysAlaThrCysThrAlaAspHis
AGCTCCTCGGCTAGCCAGCTATCCGCTCCATCTCTCAAGGCAACTTGCACCGCTAACCAT
TCGAGGAGCCGATCGGTGATAGGCGAGGTAGAGAGTTCCGTTAACGTGGCGATTGGTA

61 AspSerProAspAlaGluLeuIleGluAlaAsnLeuLeuTrpArgGlnGluMetGlyGlu
GACTCCCCTGATGCTGAGCTCATAGAGGCCAACCTCCTATGGAGGCAGGAGATGGCGGC
CTGAGGGGACTACGACTCGAGTATCTCCGTTGGAGGATACCTCCGTCCCTACCCGCCG

121 AsnIleThrArgValGluSerGluAsnLysValValIleLeuAspSerPheAspProLeu
AACATCACCAAGGGTTGAGTCAGAAAAACAAAGTGGTATTCTGGACTCCTCGATCCGCTT
TTGTAGTGGTCCAACTCAGTCTTGTTCACCACTAACGACCTGAGGAAGCTAGGCGAA

181 ValAlaGluGluAspGluArgGluIleSerValProAlaGluIleLeuArgLysSerArg
GTGGCGGAGGGAGGACGAGCGGGAGATCTCCGTACCCGCAGAAATCCTGCGGAAGTCTCGG
CACCGCCTCCTCGCTGCCCTCTAGAGGCATGGCGTCTTAGGACGCCTCAGAGCC

241 ArgPheAlaGlnAlaLeuProValTrpAlaArgProAspTyrAsnProProLeuValGlu
AGATTGCCCAAGGCCCTGCCGTTGGCGCGCCGGACTATAACCCCCCGCTAGTGGAG
TCTAACGGGTCCGGGACGGCAAACCCGCGCCGGCTGATATTGGGGGGCGATCACCTC

301 ThrTrpLysLysProAspTyrGluProProValValHisGlyCysProLeuProProPro
ACGTGGAAAAAGCCCGACTACGAACCACCTGTGGTCCATGGCTGTCGCTCACCTCCA
TGACACCTTTTGGGCTGATGCTGGACACCAGGTACCGACAGGCGAAGGTGGAGGT

361 LysSerProProValPro
AAGTCCCCCTCGTGC
TTCAGGGAGGACACGGC

FIG. 20

-----ValTrpAlaArgProAspTyrAsnProProLeuValGluThrTrpLysLysProAspTyr-----

1 CGTTTGGCGCGGCCGGACTATAACCCCCCGCTAGTGGAGACGTGGAAAAAACCGACTA
GCAAACCCGCGCCGGCTGATATTGGGGGGCGATCACCTCTGCACCTTTGGCTGAT

-----Overlap with 8f-----

61 GluProProValValHisGlyCysProLeuProProLysSerProProValProPro
CGAACACCCTGTGGTCCATGGCTGCCGCTTCCACCTCCAAAGTCCCTCCTGTGCCTCC
GCTTGGTGGACACCAGGTACCGACGGCGAAGGTGGAGGTTCAAGGGAGGACACGGAGG

121 ProArgLysLysArgThrValValLeuThrGluSerThrLeuSerThrAlaLeuAlaGlu
GCCTCGGAAGAAGCGGACGGTGGTCTCACTGAATCAACCCTATCTACTGCCTGGCCGA
CGAGGCCTCTCGCCTGCCACCAAGGAGTGAATTAGTTGGGATAGATGACGGAACCGGCT

181 LeuAlaThrArgSerPheGlySerSerSerThrSerGlyIleThrGlyAspAsnThrThr
GCTGCCACCAAGAAGCTTGGCAGCTCTCAACTTCCGGCATTACGGGCACAATACGAC
CGAGCGGTGGTCTCGAAACCGTCGAGGGAGTTGAAGGCCGTAATGCCGCTGTTATGCTG

241 ThrSerSerGluProAlaProSerGlyCysProProAspSerAspAlaGluSerPhe
AACATCCTCTGAGCCGCCCTCTGGCTGCCCGACTCCGACGCTGAGTCCTTGC
TTGTAGGAGACTCGGGCGGGGAAGACCGACGGGGGGCTGAGGCTGCGACTCAGGAAACG



FIG. 21

1 AlaSerArgSerPheGlySerSerSerThrSerGlyIleThrGlyAspAsnThrThrThr
 1 GCCTCCAGAAGCTTGGCAGCTCCTCAACTCCGGCATTACGGGCACAATACGACAACA
 CGGAGGTCTTCGAAACCGTCGAGGAGTTGAAGGCCGTAATGCCCGTGTATGCTGTTG
 -----Overlap with 33f-----
 61 SerSerGluProAlaProSerGlyCysProProAspSerAspAlaGluSerTyrSerSer
 61 TCCTCTGAGCCCCGCCCCCTTCTGGCTGCCCGACTCCGACGCTGAGTCCTATTCC
 AGGAGACTCGGGCGGGGAAGACCGACGGGGGGCTGAGGCTGCAGTCAGGATAAGGAGG
 121 MetProProLeuGluGlyGluProGlyAspProAspLeuSerAspGlySerTrpSerThr
 121 ATGCCCTCTGGAGGGGGAGCCTGGGGATCCGGATCTAGCGACGGGTATGGTCAACG
 TACGGGGGGGACCTCCCCCTCGGACCCCTAGGCCTAGAATCGCTGCCAGTACCAAGTTG
 181 ValSerSerGluAlaAsnAlaGluAspValValCysCysSerMetSerTyrSerTrpThr
 181 GTCAGTAGTGAGGCCAACGCGGAGGATGTCGTGCTGCTCAATGCTTACTCTGGACA
 CAGTCATCACTCCGGTTGCGCCTCCTACAGCACACGACGAGTTACAGAATGAGAACCTG
 241 GlyAlaLeuValThrProCysAlaAlaGluGluGlnLysLeuProIleAsnAlaLeuSer
 241 GGCGCACTCGTCACCCCGTGCGCCGCGGAAGAACAGAAACTGCCATCAATGCACTAAC
 CCGCGTGAGCAGTGGGCACGCCGCGCCCTTTGTCTTGACGGTAGTTACGTGATTG
 301 AsnSerLeuLeuArgHisHisAsnLeuValTyrSerThrThrSerArgSer
 301 AACTCGTTGCTACGTACCAATTGGTAGAGTGAGGAGAACCCCTCACGCACTG
 TTGAGCAACGATGCACTGGTAAACACATAAGGTGGTAGTGCAC

FIG. 22

1 GlyThrTyrValTyrAsnHisLeuThrProLeuArgAspTrpAlaHisAsnGlyLeuArg
 1 GGCACCTATGTTATAACCATCTGACTCCTCTCGGGACTGGGCGACAACGGCTTGC
 CGTGGATACAAATATTGGTAGAGTGAGGAGAACCCCTGACCGCGTGTGCGAACGCT

 61 AspLeuAlaValAlaValGluProValValPheSerGlnMetGluThrLysLeuIleThr
 61 GATCTGGCCGTGGCTGTAGAGCCAGTCGCTTCTCCAAATGGAGACCAAGCTCATC
 CTAGACCAGCACCGACATCTCGTCAGCAGAACAGGGTTACCTCTGGTTCGAGTAGT
 121 TrpGlyAlaAspThrAlaAlaCysGlyAspIleIleAsnGlyLeuProValSerAlaArg
 121 TGGGGGGCAGATACCGCCGCGTGCCTGACATCATCAACGGCTGCTGTTCCGCC
 ACCCCCCGTCTATGGCGCGCACGCCACTGTAGTAGTTGCCAACGGACAAAGGCGGG

 181 ArgGlyArgGluIleLeuLeuGlyProAlaAspGlyMetValSerLysGlyTrpArgLeu
 181 AGGGGCCGGAGATACTGCTGGGCCAGCGATGGAATGGCTCCAAGGGTTGGAGGTTG
 TCCCCGGCCCTCTATGACGAGCCCGGCTACCTTACCAAGAGGTTCCAACCTAAC

 241 LeuAlaProIleThrAlaTyrAlaGlnGlnThrArgGlyLeuLeuGlyCysIleIleThr
 241 CTGGCGCCCATCACGGCGTACGCCAGACAAAGGGGCCCTCTAGGGTGCATAATC
 ACCGCGGGTAGTGCCGCATGCCGGTCTGTTCCCCGGAGGATCCCACGTATTAGTGG
 -----Overlap with 7e-----
 301 SerLeuThrGlyArgAspLysAsnGlnValGluGlyGluValGlnIleValSerThrAla
 301 AGCCTAACTGGCCGGACAAAAACCAAGTGGAGGGTGAGGTCCAGATTGTGTC
 TCGGATTGACCGGCCCTGTTGGTACACCTCCACTCCAGGTCTAACACAGTTGACGA

 361 AlaGlnThrPheLeuAlaThrCysIleAsnGlyValCysTrp
 361 GCCCAAACCTTCCTGGCAACGTGCATCAATGGGGTGTGCTGG
 CGGGTTGGAGGACCGTTGCACGTAGTTACCCACACGACC



FIG. 23

1 GlyGlyValValLeuValGlyLeuMetAlaLeuThrLeuSerProTyrTyrLysArgTyr
GGCGGTGTTCTCGTCGGGTGATGGCGCTGACTCTGTCACCATATTACAAGCGCTAT
CCGCCACAAACAAGAGCAGCCAACTACCGCGACTGAGACAGTGGTATAATGTTCGCGATA

61 IleSerTrpCysLeuTrpTrpLeuGlnTyrPheLeuThrArgValGluAlaGlnLeuHis
ATCAGCTGGTGTGCTGTGGCTTCAGTATTTCTGACCAAGAGTGGAAAGCGCAACTGCAC
TAGTCGACCACGAACACCACCGAAGTCATAAAAGACTGGTCTCACCTCGCGTTGACGTG

121 ValTrpIleProProLeuAsnValArgGlyGlyArgAspAlaValIleLeuLeuMetCys
GTGTGGATTCCCCCCTCAACGTCCGAGGGGGCGCGACGCCGTACATCTTACTCATGTGT
CACACCTAACGGGGGGAGTTGCAGGCTCCCCCGCGCTGCGGCAGTAGAATGAGTACACA

181 AlaValHisProThrLeuValPheAspIleThrLysLeuLeuAlaValPheGlyPro
GCTGTACACCCGACTCTGGTATTTGACATCACCAAATTGCTGCTGCCGTCTCGGACCC
CGACATGTGGGCTGAGACCATAAAACTGTAGTGGTTAACGACGACCAGAAGCCTGG

241 LeuTrpIleLeuGlnAlaSerLeuLeuLysValProTyrPheValArgValGlnGlyLeu
CTTGATTCTCAAGCCAGTTGCTAAAGTACCCCTACTTGTCGCGGTCCAAGGCCCT
GAAACCTAACGAAAGTTCGGTCAAACGAATTGATGAAACACCGCGCAGGTTCCGGAA

301 LeuArgPheCysAlaLeuAlaArgLysMetIleGlyGlyHisTyrValGlnMetValIle
CTCCGGTTCTCGCGCTTAGCGCGGAAGATGATCGGAGGCCATTACGTGCAAATGGTCATC
GAGGCCAACAGCGCGCAATCGCGCTTACTAGCCTCCGGTAATGCACGTTACCAAGTAG

361 IleLysLeuGlyAlaLeuThrGlyThrTyrValTyrAsnHisLeuThrProLeuArgAsp
ATTAAGTTAGGGCGCTTACTGGCACCTATGTTATAACCATCTCACTCCTCTCGGGAC
TAATTCAATCCCCCGAATGACCGTGGATAACAAATTGGTAGAGTGAGGAGAACGCCCTG

421 -----Overlap with 7f-----
TrpAlaHisAsnGlyLeuArgAspLeuAlaValAlaValGluProValValPheSerGln
TGGCGCACACGCTTGCGAGATCTGGCGTGGCTGTAGAGCCAGTCGTCTTCTCCCAA
ACCCGCGTGTGCGAACGCTCTAGACCGGACATCTCGGTACAGCAGAACAGGGTT

481 -----
MetGluThrLysLeuIleThrTrpGly
ATGGAGACCAAGCTCATCACGTGGGGGC
TACCTCTGGTTCGAGTAGTCGACCCCCCG



FIG. 24

1 GluTyrValValLeuLeuLeuPheLeuLeuLeuAlaAspAlaArgValCysSerCysLeuTrp
 1 GGGAGTACGTCGTTCTCCTGTTCTGCTTGAGACGCGCGCTGCTCCTGCTTG
 61 MetMetLeuLeuIleSerGlnAlaGluAlaAlaLeuGluAsnLeuValIleLeuAsnAla
 61 GGATGATGCTACTCATATCCAAAGCGGAGGCGGCTTGGAGAACCTCGTAATACTTAATG
 121 AlaSerLeuAlaGlyThrHisGlyLeuValSerPheLeuValPhePheCysPheAlaTrp
 121 CAGCATCCCTGGCCGGGACGCACGGTCTTGTATCCTCCTCGTGTCTCTGCTTGCAT
 181 TyrLeuLysGlyLysTrpValProGlyAlaValTyrThrPheTyrGlyMetTrpProLeu
 181 GGTATTTGAAGGGTAAGTGGGTGCCCGAGCGGTCTACACCTCTACGGGATGTGGCCTC
 241 LeuLeuLeuLeuLeuAlaLeuProGlnArgAlaTyrAlaLeuAspThrGluValAlaAla
 241 TCCCTCTGCTCCTGTTGGCGTTGCCCGAGCGGGCGTACGCGCTGGACACGGAGGTGGCCG
 301 -----Overlap with 11b-----
 301 SerCysGlyGlyValValLeuValGlyLeuMetAlaLeuThrLeuSerProTyrTyrLys
 301 CGTCGTGCGGTGTTGTTCTCGTGGCTGAGTCCTGACTCTGTCACCATATTACA
 361 ArgTyrIleSerTrpCysLeuTrpTrpLeuGln
 361 AGCGCTATATCAGCTGGTGCTTGTGGCTTCAGAA
 TCGCGATATAGTCGACCAACGAAACACCGAACCGAACACCACCGAAGTCTT

FIG. 25

1 ProAlaProSerGlyCysProProAspSerAspAlaGluSerTyrSerSerMetProPro
 1 CCAGCCCCCTCTGGCTGCCCGACTCCGACGCTGAGTCCTATTCCATGCCCG
 61 LeuGluGlyGluProGlyAspProAspLeuSerAspGlySerTrpSerThrValSerSer
 61 CTGGAGGGGGAGCCTGGGATCCGGATCTTAGCGACGGGTCTGGTCAACAGTCAGTAGT
 121 -----Overlap with 33g-----
 121 GluAlaAsnAlaGluAspValValCysCysSerMetSerTyrSerTrpThrGlyAlaLeu
 121 GAGGCCAACGCGGAGGATGTCGTGCTGCTCAATGTCCTACTCTTGGACAGGCGCACTC
 181 ValThrProCysAlaAlaGluGluGlnLysLeuProIleAsnAlaLeuSerAsnSerLeu
 181 GTCACCCCGTGCAGCGCGGAAGAACAGAAACTGCCCCTACAGCACACGAGTTACAGGATGAGAAC
 241 LeuArgHisHisAsnLeuValTyrSerThrThrSerArgSerAlaCysGlnArgGlnLys
 241 CTACGTACCAACAAATTGGTGTATTCCACCCACCTCACGCAGTGCTTGCCTAAAGGCAGAAC
 301 LysValThrPheAspArgLeuGlnValLeuAspSerHisTyrGlnAspValLeuLysGly
 301 AAAGTCACATTGACAGACTGCAAGTTCTGGACAGCCATTACCAAGGACGTACTCAAGGAG
 361 ValLysAlaAlaAlaSerLysValLysAlaAsnPhe
 361 GTTAAAGCAGCGCGTCAAAAGTGAAGGCTAACTTC
 CAATTTCGTCGCCGCAGTTTCAACTCCGATTGAAG



FIG. 26A

1 GluTyrValValLeuLeuPheLeuLeuLeuAlaAspAlaArgValCysSerCysLeuTrp
 1 GGGAGTACGTCGTTCTCTGTTCTCTGCTTGAGACGCGCGCGTCTGCTCTGCTTG
 CCCTCATGCAGCAAGAGGACAAGGAAGACGAACGTAAGCTGCGCGCGAGACGAGGACGAACA

 61 MetMetLeuLeuIleSerGlnAlaGluAlaAlaLeuGluAsnLeuValIleLeuAsnAla
 61 GGATGATGCTACTCATATCCCAGCGGAGGCGGCTTGGAGAACCTCGTAATACTTAATG
 CCTACTACGATGAGTATAGGGTTCGCGCTCCGCCGAAACCTCTGGAGCATTATGAATTAC

 121 AlaSerLeuAlaGlyThrHisGlyLeuValSerPheLeuValPhePheCysPheAlaTrp
 121 CAGCATCCCTGGCCGGGACGCACGGTCTTGTATCCTCCTCGTGTGTTCTGCTTTGCAT
 GTCGTAGGGACCGGCCCTCGTGCAGAACATAGGAAGGAGCACAAGAAGACGAAACGTA

 181 TyrLeuLysGlyLysTrpValProGlyAlaValTyrThrPheTyrGlyMetTrpProLeu
 181 GGTATTGAAAGGGTAAGTGGGTGCCCCGGAGCGGGTCTACACCTTCTACGGGATGTGGCCTC
 CCATAAACTTCCCATTCAACCCACGGGCCCTGCCAGATGTGGAGATGCCCTACACCGGAG

 241 LeuLeuLeuLeuLeuAlaLeuProGlnArgAlaTyrAlaLeuAspThrGluValAlaAla
 241 TCCTCCTGCTCTGTTGGCGTTGCCCCAGCGGGCGTACCGCCTGGACACGGAGGTGGCCG
 AGGAGGACGAGGACAACCGCAACGGGTCGCCGCATGCCGACCTGTGCCCTCCACCGGC

 301 SerCysGlyGlyValValLeuValGlyLeuMetAlaLeuThrLeuSerProTyrTyrLys
 301 CGTCGTGGCGGTGTTGTCGGCTGACTCTGTCACCATATTACA
 GCAGCACACCGCCACAACAAGAGCAGCCCAACTACCGCGACTGAGACAGTGGTATAATGT

 361 ArgTyrIleSerTrpCysLeuTrpTrpLeuGlnTyrPheLeuThrArgValGluAlaGln
 361 AGCGCTATATCAGCTGGTCTGTTGGCTTCAAGTCTGACTCTGTCACCATATTACA
 TCGCGATATAGTCGACCAACGAAACACCACCGAAGTCATAAAAGACTGGTCTCACCTCGCG

 421 LeuHisValTrpIleProProLeuAsnValArgGlyArgAspAlaValIleLeuLeu
 421 AACTGCACGTGTGGATTCCCCCTCAACGTCCGAGGGGGGCGCAGGCCGTATCTAC
 TTGACGTGCACACCTAACGGGGGGAGTTGCAGGCTCCCCCGCGTGCAGTAGAATG

 481 MetCysAlaValHisProThrLeuValPheAspIleThrLysLeuLeuAlaValPhe
 481 TCATGTGTGCTGTACACCCGACTCTGGTATTTGACATACCAAATTGCTGCTGGCCGTCT
 AGTACACACGACATGTGGGCTGAGACCATAAACTGTAGTGGTTAACGACGACCGGAGA

 541 GlyProLeuTrpIleLeuGlnAlaSerLeuLeuLysValProTyrPheValArgValGln
 541 TCGGACCCCTTGATTCTCAAGCCAGTTGCTTAAGTACCCACTTTGTGCCGTCC
 AGCCTGGGAAACCTAACGAAGTTCGGTAAACGAATTTCATGGGATGAAACACGCCAGG

 601 GlyLeuLeuArgPheCysAlaLeuAlaArgLysMetIleGlyGlyHisTyrValGlnMet
 601 AAGGCCTCTCCGGTTCTCGCGCTTAGCGCGGAAGATGATCGGAGGCCATTACGTGCAA
 TTCCGGAAGAGGCCAACGCGCAATCGCCCTACTAGCCTCGGTAAATGCACGTT

 661 ValIleIleLysLeuGlyAlaLeuThrGlyThrTyrValTyrAsnHisLeuThrProLeu
 661 TGGTCATCATTAAGTTAGGGCGCTTACTGGCACCTATGTTATAACCATCTCACTCCTC
 ACCAGTAGTAATTCAATCCCCCGAATGACCGTGGATACAAATTGGTAGAGTGAGGAG

 721 ArgAspTrpAlaHisAsnGlyLeuArgAspLeuAlaValAlaValGluProValValPhe
 721 TTCCGGACTGGGCGCACACGGCTTGCAGAGATCTGGCGTGGCTGTAGAGCCAGTCGTCT
 AAGCCCTGACCCCGCTTGGCCGAACGCTCTAGACCCGGCACATCTCGGTACAGAGA

 781 SerGlnMetGluThrLysLeuIleThrTrpGlyAlaAspThrAlaAlaCysGlyAspIle
 781 TCTCCCAAATGGAGACCAAGCTCATCACGTGGGGGGCAGATACCGCCGCGTGCAGGAGA
 AGAGGGTTTACCTCTGGTCAGTAGTGCACCCCCCGTCTATGGCGCGCACGCCACTGT

 841 IleAsnGlyLeuProValSerAlaArgArgGlyArgGluIleLeuGlyProAlaAsp
 841 TCATCAACGGCTTGCCTGTTCCGCCGAGGGGGGGAGATACTGCTCGGGCCAGCCG
 AGTAGTTGCCGAACGGACAAAGGCGGGCGTCCCCGGCCCTATGACGAGCCCAGCAGA

 901 GlyMetValSerLysGlyTrpArgLeuLeuAlaProIleThrAlaTyrAlaGlnGlnThr
 901 ATGGAATGGTCTCCAAGGGGTGGAGGTTGCTGGCGCCCATCACGGCGTACGCCAGCAGA
 TACCTTACAGAGGTTCCCCACCTCCAAACGACCGCGGGTAGTGCCGCATGCCGTCGTC



FIG. 26B

ArgGlyLeuLeuGlyCysIleIleThrSerLeuThrGlyArgAspLysAsnGlnValGlu
 961 CAAGGGGGCTCTCTAGGGTGCATAATCACCAGCCTAACTGGCCGGACAAAAACCAAGTGG
 GTTCCCCGGAGGATCCCACGTATTAGTGGTCGGATTGACCGGCCCTGTTTGGTTCAAC

 GlyGluValGlnIleValSerThrAlaAlaGlnThrPheLeuAlaThrCysIleAsnGly
 1021 AGGGTGAGGTCCAGATTGTGTCACTGCTGCCAACCTTCTGGCAACGTGCATCAATG
 TCCCACCTCCAGGTCTAACACAGTTGACGACGGGTTTGAAGGACCGTTGCACGTAGTTAC

 ValCysTrpThrValTyrHisGlyAlaGlyThrArgThrIleAlaSerProLysGlyPro
 1081 GGGGTGCTGGACTGTCTACCACGGGGCCGGAACGGGACCATCGCTCACCAAGGGTC
 CCCACACGACCTGACAGATGGTGCCCGCCTGCTCTGGTAGCGCAGTGGGTTCCAG

 ValIleGlnMetTyrThrAsnValAspGlnAspLeuValGlyTrpProAlaProGlnGly
 1141 CTGTCATCCAGATGTATACCAATGTAGACCAAGACCTTGTGGGCTGGCCCGCTCCGCAAG
 GACAGTAGGTCTACATATGGTTACATCTGGTCTGGAACACCCGACCGGGCGAGGCAGTTC

 SerArgSerLeuThrProCysThrCysGlySerSerAspLeuTyrLeuValThrArgHis
 1201 GTAGCCGCTCATTGACACCCCTGCACTTGCCTCGGCTCTCGGACCTTACCTGGTCACGAGGC
 CATCGGCGAGTAACTGTGGGACGTGAACGCCGAGGAGCCTGGAAATGGACCAAGTGCCTCG

 AlaAspValIleProValArgArgArgGlyAspSerArgGlySerLeuLeuSerProArg
 1261 ACGCCGATGTCATTCCCGTGCGCCGGGGGTGATAGCAGGGCAGCCTGCTGTCGCC
 TGCCTACAGTAAGGGCACGCCGCCACTATCGTCCCCGTCGGACGACAGCGGGG

 ProIleSerTyrLeuLysGlySerSerGlyGlyProLeuLeuCysProAlaGlyHisAla
 1321 GGCCCATTCTACTTGAAGAGCTCCTCGGGGGTCCCGTGTGTCGCCCCCGGGGACG
 CGGGTAAAGGATGAACCTTCCGAGGAGCCCCCAGGCGACAACACGGGGCGCCCGTGC

 ValGlyIlePheArgAlaAlaValCysThrArgGlyValAlaLysAlaValAspPheIle
 1381 CCGTGGGCATATTAGGGCCCGGTGTCACCCGTGGAGTGGCTAAGGGGTGGACTTTA
 GGCACCCGTATAATCCGGGCCACACGTGGCACCTCACCGATTCCGCCACCTGAAAT

 ProValGluAsnLeuGluThrThrMetArgSerProValPheThrAspAsnSerSerPro
 1441 TCCCTGTGGAGAACCTAGAGACAACCATGAGGTCCCCGGTGTTCACGGATAACTCCTCTC
 AGGGACACCTTGGATCTCTGTTGGTACTCCAGGGGCCACAAGTGCCTATTGAGGAGAG

 ProValValProGlnSerPheGlnValAlaHisLeuHisAlaProThrGlySerGlyLys
 1501 CACCAAGTAGTGCCCAAGAGCTTCCAGGTGGCTACCTCCATGCTCCCACAGGCAGCGGCA
 GTGGTCATCACGGGTCTCGAAGGTCCACCGAGTGGAGGTACGAGGGTGTCCGTCGCC

 SerThrLysValProAlaAlaTyrAlaAlaGlnGlyTyrLysValLeuValLeuAsnPro
 1561 AAAGCACCAAGGTCCCAGCTGCATATGCAGCTAGGGCTATAAGGTGCTAGTACTCAACC
 TTTCGTGGTTCAGGGCCGACGTATACTGAGTCCCAGTATTCACGATCATGAGTTGG

 SerValAlaAlaAlaThrLeuGlyPheGlyAlaTyrMetSerLysAlaHisGlyIleAspPro
 1621 CCTCTGTGCTGCAACACTGGGCTTGGTCTACATGTCAGGCTCATGGGATCGATC
 GGAGACAACGACGTTGTGACCCGAAACACGAATGTACAGGTTCCGAGTACCCCTAGCTAG

 AsnIleArgThrGlyValArgThrIleThrThrGlySerProIleThrTyrSerThrTyr
 1681 CTAACATCAGGACCGGGGTGAGAACAAATTACCAACTGGCAGCCCCATCAGTACTCCACCT
 GATTGTAGTCCTGGCCCCACTTTGTTAATGGTGACCGTCGGGGTAGTGCATGAGGTGGA

 GlyLysPheLeuAlaAspGlyGlyCysSerGlyGlyAlaTyrAspIleIleIleCysAsp
 1741 ACGGCAAGTCCCTGCGACGGCGGGGTGCTCGGGGGCGCTTATGACATAATAATTGTG
 TGCCGTTCAAGGAACGGCTGCCGCCACGAGCCCCCGCGAATACTGTATTATAAACAC

 GluCysHisSerThrAspAlaThrSerIleLeuGlyIleGlyThrValLeuAspGlnAla
 1801 ACGAGTGCCACTCCACGGATGCCACATCCATTTGGCATGGCAGTGGCCTTGACCAAG
 TGCTCACGGTGAGGTGCCTACGGTAGGTAGAACCCGTAGCCGTACAGGAACCTGGTCA

 GluThrAlaGlyAlaArgLeuValValLeuAlaThrAlaThrProProGlySerValThr
 1861 CAGAGACTGCGGGGGCGAGACTGGTTGTGCTCGCCACCGCCACCCCTCCGGCTCCGTCA
 GTCTCTGACGCCCGCTCTGACCAACACGAGCGGTGGCGGTGGGGAGGGCCGAGGCAGT

 ValProHisProAsnIleGluGluValAlaLeuSerThrThrGlyGluIleProPheTyr
 1921 CTGTGCCCATCCAACATCGAGGAGGTGCTGTCCACCAACCGGAGAGATCCCTTTT
 GACACGGGGTAGGGTTGTAGCTCCTCCAACGAGACAGGTGGTGGCCTCTAGGGAAAAAA



FIG. 26C

GlyLysAlaIleProLeuGluValIleLysGlyGlyArgHisLeuIlePheCysHisSer
 1981 ACGGCAGGCTATCCCCCTGAAGTAATCAAGGGGGGGAGACATCTCATCTTCTGTCTT
 TGCCGTTCCGATAGGGGAGCTCATTAGTTCCCCCTCTGTAGAGTAGAAGACAGTAA

 LysLysLysCysAspGluLeuAlaAlaLysLeuValAlaLeuGlyIleAsnAlaValAla
 2041 CAAAGAAGAAGTGCAGCAGACTCGCCGCAAAGCTGGTCGCATTGGCATCAATGCCGTGG
 GTTTCTTCTCACGCTGCTTGAGCGCGTTCGACCAGCGTAACCGTAGTTACGGCAC

 TyrTyrArgGlyLeuAspValSerValIleProThrSerGlyAspValValValAla
 2101 CCTACTACCGCGGTCTTGACGTGTCGTCATCCCGACCAGCGCGATGTTGTCGTGG
 GGATGATGGCGCCAGAACATGCACAGGCACTAGGGCTGGTCGCCCTACAACAGCAGCACC

 ThrAspAlaLeuMetThrGlyTyrThrGlyAspPheAspSerValIleAspCysAsnThr
 2161 CAACCGATGCCCTCATGACCGGGCTATACCGGGCAGTCGACTCGGTGATAAGACTGCAATA
 GTTGGCTACGGGAGTACTGGCCGATATGGCCGCTGAAGCTGAGCCACTATCTGACGTTAT

 CysValThrGlnThrValAspPheSerLeuAspProThrPheThrIleGluThrIleThr
 2221 CGTGTGTCACCCAGACAGTCGATTCAGCCTTGACCCCTACCTCACCAATTGAGACAATCA
 GCACACAGTGGGTCTGTCAGCTAAAGTCGGAACCTGGGATGGAAGTGGTAACCTGTTAGT

 LeuProGlnAspAlaValSerArgThrGlnArgArgGlyArgThrGlyArgGlyLysPro
 2281 CGCTCCCCCAGGATGCTGCTCCGCACTCAACGTCGGGGCAGGACTGGCAGGGGGAAAGC
 GCGAGGGGGGTCCTACGACAGAGGGCGTGAGTTGCAGCCCCGTCCTGACCCTCCCCCTCG

 GlyIleTyrArgPheValAlaProGlyGluArgProSerGlyMetPheAspSerSerVal
 2341 CAGGCATCTACAGATTGTGGCACCGGGGGAGCGCCCTCCGGCATGTTGACTCGTCG
 GTCCGTAGATGTCTAACACCGTGGCCCCCTCGCGGGGAGGCCGTACAAGCTGAGCAGGC

 LeuCysGluCysTyrAspAlaGlyCysAlaTrpTyrGluLeuThrProAlaGluThrThr
 2401 TCCCTGAGTGCTATGACGCAGGCTGTGCTTGGTATGAGCTCACGCCGCCGAGACTA
 AGGAGACACTCACGATACTGCGTCCGACACGAAACCATACTCGAGTGCAGGGCGGCTCTGAT

 ValArgLeuArgAlaTyrMetAsnThrProGlyLeuProValCysGlnAspHisLeuGlu
 2461 CAGTTAGGCTACGAGCGTACATGAACACCCCCGGGGCTTCCGTTGCCCCACTTGTG
 GTCATCCGATGCTCGCATGTACTTGTGGGGCCCCGAAGGGCACACGGTCTGGTAGAAC

 PheTrpGluGlyValPheThrGlyLeuThrHisIleAspAlaHisPheLeuSerGlnThr
 2521 AATTTTGGGAGGGCGTCTTACAGGCCTCACTCATATAAGATGCCCACTTCTATCCCAGA
 TAAAAACCTCCCGAGAAATGTCGGAGTGAGTATATCTACGGGTGAAAGATAGGGTCT

 LysGlnSerGlyGluAsnLeuProTyrLeuValAlaTyrGlnAlaThrValCysAlaArg
 2581 CAAAGCAGAGTGGGGAGAACCTTCTTACCTGGTAGCGTACCAAGCCACCGTGTGCGCTA
 GTTTCGTCACCCCTTGGAAAGGAATGGACCATCGATGGTCGGTGGCACACGCGAT

 AlaGlnAlaProProSerTrpAspGlnMetTrpLysCysLeuIleArgLeuLysPro
 2641 GGGCTCAAGCCCCCTCCCCATCGTGGGACCAAGATGTGGAAGTGTGATTGCGCTCAAGC
 CCCGAGTTGGGGAGGGGTAGCACCCCTGGTCTACACCTCACAAACTAACGGAGTTG

 ThrLeuHisGlyProThrProLeuLeuTyrArgLeuGlyAlaValGlnAsnGluIleThr
 2701 CCACCCCTCCATGGGCCAACACCCCCTGCTATACAGACTGGCGTGTTCAGAATGAAATCA
 GGTGGGAGGTACCCGGTTGTGGGACGATATGTCTGACCCCGCACAAGTCTTACTTTAGT

 LeuThrHisProValThrLysTyrIleMetThrCysMetSerAlaAspLeuGluValVal
 2761 CCCTGACGCACCCAGTCACCAAATACATCATGACATGCATGTCGGCCGACCTGGAGGTG
 GGGACTGCGTGGGTCAGTGGTTATGTAGTACTGTACGTACAGCCGGCTGGACCTCCAGC

 ThrSerThrTrpValLeuValGlyGlyValLeuAlaAlaLeuAlaAlaTyrCysLeuSer
 2821 TCACGAGCACCTGGGTGCTCGTGGCGCGCTGGCTGCTTGGCCGCGTATTGCGCTG
 AGTGCCTGAGGACCCACGAGCAACCGCCGCAAGGACCGACGAAACCCGGCGATAACGGACA

 ThrGlyCysValValIleValGlyArgValValLeuSerGlyLysProAlaIleIlePro
 2881 CAACAGGCTGCGTGGTCATAGTGGGCAGGGTCGTCTGTCCGGGAAGGCCGGCAATCATA
 GTTGTCCGACGCACCAAGTACCCGTCCAGCAGAACAGGCCCTCGGCCGTTAGTATG



FIG. 26D

TyrIleGluGlnGlyMetMetLeuAlaGluGlnPheLysGlnLysAlaLeuGlyLeuLeu
 3001 CGTACATCGAGCAAGGGATGATGCTGCCAGCAGTCAAGCAGAAGGCCCTGGCCCTCC
 GCATGTAGCTCGTCCCTACTACGAGCGGCTCGTCAAGTCGCTTCGGAGCCGGAGG

 GlnThrAlaSerArgGlnAlaGluValIleAlaProAlaValGlnThrAsnTrpGlnLys
 3061 TGCAGACCGCGTCCCGTCAGGCAGAGGTTATGCCCTGCTGCCAGACCAACTGGCAAA
 ACGTCTGGCGCAGGGCAGTCCGTCCTCAATAGCGGGGACGACAGGTCTGGTGACCGTT

 LeuGluThrPheTrpAlaLysHisMetTrpAsnPheIleSerGlyIleGlnTyrLeuAla
 3121 AACTCGAGACCTCTGGCGAAGCATATGTGGAACCTCATCAGTGGATACAATACTTGG
 TTGAGCTCTGGAAGACCCGCTTCGTATACACCTGAAGTAGTCACCCATGTTATGAACC

 GlyLeuSerThrLeuProGlyAsnProAlaIleAlaSerLeuMetAlaPheThrAlaAla
 3181 CGGGCTTGTCAACGCTGCCCTGGTAACCCCGCCATTGCTTCATTGATGGCTTTACAGCTG
 GCGCGAACAGTTGCGACGGACCATTGGGGCGTAACGAAGTAACCTACCGAAAATGTCGAC

 ValThrSerProLeuThrThrSerGlnThrLeuLeuPheAsnIleLeuGlyGlyTrpVal
 3241 CTGTCACCAGCCCCTAACCAACTAGCCAAACCCCTCTTCAACATATTGGGGGGGTGGG
 GACAGTGGTCGGGTGATTGGTGATCGGTTGGAGGAGAAGTTGTATAACCCCCCACCC

 AlaAlaGlnLeuAlaAlaAlaProGlyAlaAlaThrAlaPheValGlyAlaGlyLeuAlaGly
 3301 TGGCTGCCAGCTGCCGCCCGGTGCCCTACTGCCCTTGTCGGCGCTGGCTTAGCTG
 ACCGACGGGTCGAGCGCGGGGCCACGGCGATGACGGAAACACCCGCGACCGAACATCGAC

 AlaAlaIleGlySerValGlyLeuGlyLysValLeuIleAspIleLeuAlaGlyTyrGly
 3361 GCGCCGCCATCGGCAGTGGACTGGGACTGGGAAAGGTCCCTCATAGACATCCTTGCAAGGGTATG
 CGCGCGGTAGCCGTACAACCTGACCCCTCAGGAGTATCTGTAGGAACGTCCTACAC

 AlaGlyValAlaGlyAlaLeuValAlaPheLysIleMetSerGlyGluValProSerThr
 3421 GCGCGGGCGTGGCGGGAGCTTGTGGCATTCAAGATCATGAGCGGTGAGGTCCCCTCCA
 CGCGCCCGCACGCCCTCGAGAACACCGTAAGTTCTAGTACTGCCACTCCAGGGGAGGT

 GluAspLeuValAsnLeuLeuProAlaIleLeuSerProGlyAlaLeuValValGlyVal
 3481 CGGAGGACCTGGTCAATCTACTGCCGCCATCCTCTGCCCGGAGCCCTCGTAGTCGGCG
 GCCTCCTGGACCAGTTAGATGACGGCGGTAGGAGAGCGGGCCTCGGGAGCATCAGCCGC

 ValCysAlaAlaIleLeuArgArgHisValGlyProGlyGluGlyAlaValGlnTrpMet
 3541 TGGTCTGTGCAGCAATACTGCCGGCACGTTGGCCGGCAGGGGGCAGTGCAGTGG
 ACCAGACACGTCGTTATGACGGCCGTGCAACCGGGCCGCTCCCCGTACGTACCT

 AsnArgLeuIleAlaPheAlaSerArgGlyAsnHisValSerProThrHisTyrValPro
 3601 TGAACCGGCTGATAGCCTTCGCCCTCCGGGGAACATGTTCCCCCACGCACTACGTGC
 ACTTGGCCGACTATCGGAAGCGGGCCCTGGTACAAAGGGGGTGCCTGATGCACG

 GluSerAspAlaAlaAlaArgValThrAlaIleLeuSerSerLeuThrValThrGlnLeu
 3661 CGGAGAGCGATGCAAGCTGCCGCGTCACTGCCATACTCAGCAGCCTCACTGTAACCCAGC
 GCCTTCGCTACGTCGACGGCGCAGTGACGGTATGAGTCGTCGGAGTGACATTGGGTG

 LeuArgArgLeuHisGlnTrpIleSerSerGluCysThrThrProCysSerGlySerTrp
 3721 TCCGTGAGGGCAGCTGCCACAGTGGATAAGCTGGAGTGTACCACTCCATGCTCCGGTTCC
 AGGACTCCGCTGACGTGGTACCTATTGAGCCTCACATGGTGAGGTACGAGGCCAGGA

 LeuArgAspIleTrpAspTrpIleCysGluValLeuSerAspPheLysThrTrpLeuLys
 3781 GGCTAAGGGACATCTGGGACTGGATATGCGAGGTGTTGAGCGACTTAAAGACCTGGCTAA
 CCGATTCCCTGTAGACCCCTGACCTATACGCTCCACAACTCGCTGAAATTCTGGACCGATT

 AlaLysLeuMetProGlnLeuProGlyIleProPheValSerCysGlnArgGlyTyrLys
 3841 AAGCTAAGCTCATGCCACAGCTGCCCTGGATCCCCTTGTGTCCTGCCAGCGCGGGTATA
 TTCGATTGAGTACGGTGTGACGGACCCTAGGGGAAACACAGGACGGTCGCGCCATAT

 GlyValTrpArgValAspGlyIleMetHisThrArgCysHisCysGlyAlaGluIleThr
 3901 AGGGGGTCTGGCGAGTGGACGGCATCATGCACACTCGCTGCCACTGTGGAGCTGAGATCA
 TCCCCCAGACCGCTCACCTGCCGTAGTACGTGTGAGCGACGGTACACCTCGACTTAGT



FIG. 26E

SerGlyThrPheProIleAsnAlaTyrThrThrGlyProCysThrProLeuProAlaPro
4021 GGAGTGGGACCTTCCCCATTAAATGCCAACCCACGGGCCCTGTACCCCTTCCTGC
CCTCACCTGGAAAGGGTAATTACGGATGTGGTGCCGGACATGGGGGAAGGACGCG
AsnTyrThrPheAlaLeuTrpArgValSerAlaGluGluTyrValGluIleArgGlnVal
4081 CGAACTACACGTTCGCGCTATGGAGGGTGTCTGCAGAGGAATATGTGGAGATAAGGCAGG
GCTTGATGTGCAAGCGCGATACCTCCCACAGACGTCTCCTTACACCTCTATTCCGTCC
GlyAspPheHisTyrValThrGlyMetThrThrAspAsnLeuLysCysProCysGlnVal
4141 TGGGGGACTTCACTACGTGACGGGTATGACTACTGACAATCTCAAATGCCGTGCCAGG
ACCCCTGAAGGTATGCACTGCCCATACTGATGACTGTTAGAGTTACGGGCACGGTCC
ProSerProGluPhePheThrGluLeuAspGlyValArgLeuHisArgPheAlaProPro
4201 TCCCATCGCCCCAATTTCACAGAATTGGACGGGTGCGCCTACATAGGTTGCGCCCC
AGGGTAGCGGGCTTAAAAGTGTCTAACCTGCCACGCGATGTACCAAACGCGGG
CysLysProLeuLeuArgGluGluValSerPheArgValGlyLeuHisGluTyrProVal
4261 CCTGCAAGCCCCCTGCTCGGGAGGGTATCATTAGAGTAGGACTCCACGAAATACCCGG
GGACGTTGGAACGACGCCCTCCCATAGTAAGTCTCATCTGAGGTGCTTATGGGCC
GlySerGlnLeuProCysGluProGluProAspValAlaValLeuThrSerMetLeuThr
4321 TAGGGTCGCAATTACCTTGCAGGCCGAACCGGACGTGGCGTGTGACGTCCATGCTCA
ATCCCAGCGTTAATGGAACGCTCGGGCTTGGCCTGCACCGGACAACGTGAGGTACGAGT
AspProSerHisIleThrAlaGluAlaAlaGlyArgArgLeuAlaArgGlySerProPro
4381 CTGATCCCTCCCATATAACAGCAGAGGGCGGCCGGCGAAGGGTGGCGAGGGGATACCCCG
GACTAGGGAGGGTATATTGCGTCTCCGCCGGCCGCTTCAACCGCTCCCTAGTGGGG
SerValAlaSerSerAlaSerGlnLeuSerAlaProSerLeuLysAlaThrCysThr
4441 CCTCTGGCCAGCTCTCGGCTAGCCAGCTATCCGCTCCATCTCAAGGCAACTTGCA
GGAGACACCGGTGAGGAGCCGATCGGTCGATAGCGAGGTAGAGAGTCCGTTAACG
AlaAsnHisAspSerProAspAlaGluLeuIleGluAlaAsnLeuLeuTrpArgGlnGlu
4501 CCGCTAACCATGACTCCCCGTGATGCTGAGCTATAGAGGCCAACCTCTATGGAGGCAGG
GGCGATTGGTACTGAGGGGACTACGACTCGAGTATCTCGGTTGGAGGATAACCTCCGTCC
MetGlyGlyAsnIleThrArgValGluSerGluAsnLysValValIleLeuAspSerPhe
4561 AGATGGGGCGGAAACATCACCAAGGGTTGAGTCAGAAAAAACAAAGTGGTATTCTGGACTCCT
TCTACCCGCCGTTGAGTGGTCCAACTCAGTTTGTACCAACTAACGACTGAGGA
AspProLeuValAlaGluGluAspGluArgGluIleSerValProAlaGluIleLeuArg
4621 TCGATCCGCTTGTGGCGAGGAGGACGAGCGGGAGATCTCGTACCCGAGAAATCCTGC
AGCTAGGCGAACACCGCCCTCCCTGCTGCCCTAGAGGCATGGCGTCTTAGGACG
LysSerArgArgPheAlaGlnAlaLeuProValTrpAlaArgProAspTyrAsnProPro
4681 GGAAGTCTGGAGATTGCCAGGCCCTGCCGTTGGCGCGGACTATAACCCCG
CCTTCAGAGCCTCTAACGGTCCGGGACGGGAAACCCGCGCCGGCTGATATTGGGG
LeuValGluThrTrpLysLysProAspTyrGluProProValValHisGlyCysProLeu
4741 CGCTAGGGAGACGTGGAAAAAGCCCAGCTACGAACCACCTGTGGTCCATGGCTGCCGC
GCGATCACCTCTGCACCTTTGGGCTGATGCTGGTGACACCAGGTACCGACAGGCG
ProProProLysSerProProValProProProArgLysLysArgThrValValLeuThr
4801 TTCCACCTCCAAAGTCCCCTCTGTGCCTCCGCCCTGGAAAGAACGGACGGTGGTCC
AAGGTGGAGGTTTCAGGGAGGACACGGAGGCGAGCCTTCTCGCCTGCCACCAGGAGT
GluSerThrLeuSerThrAlaLeuAlaGluLeuAlaThrArgSerPheGlySerSerSer
4861 CTGAATCAACCTATCTACTGCCCTGGCGAGCTGCCACCAAGAAGCTTGGCAGCTCCT
GACTTAGTTGGGATAGATGACGGAACCGGCTCGAGCGGTGGCTTCGAAACCGTCGAGGA
ThrSerGlyIleThrGlyAspAsnThrThrSerSerGluProAlaProSerGlyCys
4921 CAACTCCGGCATTACGGGCACAATACGACAACATCCTCTGAGCCGCCCTTCTGGCT
GTTGAAGGCCGTAATGCCGCTGTTATGCTGTTAGGAGACTCGGGCGGGGAAGACC
ProProAspSerAspAlaGluSerTyrSerSerMetProProLeuGluGlyGluProGly
4981 GCCCCCCGACTCCGACGCTGAGTCCTATTCCCTCATGCCCTGGAGGGGGAGCCTG
CGGGGGGGCTGAGGCTGCGACTCAGGATAAGGAGGTACGGGGGGGACCTCCCCCTCGGAC



FIG. 26F

AspProAspLeuSerAspGlySerTrpSerThrValSerSerGluAlaAsnAlaGluAsp
 5041 GGGATCCGGATCTTAGCGACGGGTCAAGGTCAGTAGTGAGGCCAACGCGGAGG
 CCCTAGGCCTAGAACGCTGCCAGTACCACTGCCAGTCATCACTCCGGTTGCGCCTCC

 ValValCysCysSerMetSerTyrSerTrpThrGlyAlaLeuValThrProCysAlaAla
 5101 ATGTCGTGTGCTGCTCAATGTCTTACTCTTGGACAGGGCGACTCGTCACCCCGTGCGCCG
 TACAGCACACGACGAGTTACAGAACGAGTGTCCCGTGA

 GluGluGlnLysLeuProIleAsnAlaLeuSerAsnSerLeuLeuArgHisHisAsnLeu
 5161 CGGAAGAACAGAAACTGCCCATCAATGCACTAAGCAACTCGTTGCTACGTCAACCACAATT
 GCCTCTTGTCTTGACGGTAGTTACGTGATTGAGCAACGATGCAGTGGTGTAA

 ValTyrSerThrThrSerArgSerAlaCysGlnArgGlnLysLysValThrPheAspArg
 5221 TGGTGTATTCCACCACCTCACGCAAGTGCTTGCAAAGGCAGAAGAAAAGTCACATTGACA
 ACCACATAAGGTGGTGGAGTGCCTCACGAACGGTTCCGCTTCAAGTGTAAACTGT

 LeuGlnValLeuAspSerHisTyrGlnAspValLeuLysGluValLysAlaAlaAlaSer
 5281 GACTGCAAGTTCTGGACAGCCATTACCAAGGACGTACTCAAGGAGGTTAAAGCAGCGCGT
 CTGACGTTCAAGACCTGTCGGTAATGGCCTGCATGAGTTCCCTCCAATTTCGTCGCCGCA

 LysValLysAlaAsnLeu
 5341 CAAAAGTGAAGGCTAACTTG
 GTTTCACTCCGATTGAAC

FIG. 30

GlyGlyGluAsnCysGlyTyrArgArgCysArgAlaSerGlyValLeuThrThrSerCys
 1 GGGGGGGAGAACTGCGGCTATCGCAGGTGCCGCGCAAGCGCGTACTGACAACTAGCTGT
 CCCCCCCTCTTGACGCCGATAGCGTCCACGGCGCGTTCGCGCATGACTGTTGATCGACA

 GlyAsnThrLeuThrCysTyrIleLysAlaArgAlaAlaCysArgAlaAlaGlyLeuGln
 61 GGTAAACACCCCTCACTTGTATCATCAAGGCCGAGCAGCCTGTCGAGCCGAGGGCTCCAG
 CCATTGTGGAGTGAACAATGTAGTTCCGGGCTCGCGACAGCTCGCGTCCGAGGTC

 -----Overlap with 19g-----
 AspCysThrMetLeuValCysGlyAspAspLeuValValIleCysGluSerAlaGlyVal
 121 GACTGCACCATGCTCGTGTGGCGACGACTTAGTCGTTATCTGTGAAAGCGCGGGGGTC
 CTGACGTGGTACGAGCACACACCGCTGCTGAATCAGCAATAGACACTTCGCGCCCCAG

 GlnGluAspAlaAlaSerLeuArgAlaPheThrGluAlaMetThrArgTyrSerAlaPro
 181 CAGGAGGACGCCGAGCCTGAGAGCCTCACGGAGGGCTATGACCAGGTACTCCGCCCCC
 GTCTCCTCGCCGCTCGGACTCTCGGAAGTGCCTCCGATACTGGTCCATGAGGCAGGGGG

 ProGlyAspProProGlnProGluTyrAspLeuGluLeuIleThrSerCysSerSerAsn
 241 CCTGGGGACCCCCCACAACCAGAACATGACTTGGAGCTCATACATCATGCTCCTCAAC
 GGACCCCTGGGGGTGTTGGTCTTATGCTGAACCTCGAGTATGTAGTACGAGGAGGTTG

 ValSerValAlaHisAspGlyAlaGlyLysArgValTyrTyrLeuThrArgAspProThr
 301 GTGTCAGTCGCCACGACGGCGCTGGAAAGAGGGTCTACTACCTCACCCGTGACCCCTACA
 CACAGTCAGCGGGTGCTGCCGACCTTCTCCAGATGATGGAGTGGGCACTGGGATGT

 ThrProLeuAlaArgAlaAlaTrpGluThrAlaArgHisThrProValAsnSerTrpLeu
 361 ACCCCCCCTCGCGAGAGCTCGTGGAGACAGCAAGAACACACTCCAGTCATGCAATTCTGGCTA
 TGGGGGGAGCGCTCTCGACGCACCCCTGTCGTTCTGTGAGGTCAGTTAAGGACCGAT

 GlyAsnIleIleMetPheAlaProThrLeuTrpAla
 421 GGCAACATAATCATGTTGCCACACTGTGGCG
 CGTTGTATTAGTACAAACGGGGTGTGACACCCGC



FIG. 27

IlePheLysIleArgMetTrpIleGlyValGluHisArgLeuGluAlaAlaCysAsn
1 CCATATTAAATCAGGATGTACGTGGAGGGTCCGAAACACAGGCTGGAAAGCTGCCTGCA
GGTATTAAATTAGTCCCTACATGGCACCCTCCCCAGCTTGTGTCGACCTTCGACGGACGT
TrpThrArgGlyGluArgCysAspLeuGluAspArgAspArgSerGluLeuSerProLeu
61 ACTGGACGGGGCGAACAGCTTGGATCTGGAAAGACAGGGACAGGCTCAGCTCAGCCCCGT
TGACCTGCGCCCCGGCTTGGCAACGGCTAGACCTTCTGTCCCTGTCCAGGCTCGAGTCGGCA
LeuLeuThrThrThrGlnTrpGlnValLeuProCysSerPheThrThrLeuProAlaLeu
121 TACTGCTGACCACTACACAGTGGCAGGTCTCCCGTGTTCCTCACAAACCTAACAGCCT
ATGACCACTGGTGATGTGTCAACCGTCCAGGAGGGACAAGGAAGTGTGGATGGTGGAA
SerThrGlyLeuIleHisLeuHisGlnAsnIleValAspValGlnItyLeuTyrglyVal
181 TGTCCACCGGCCTCATCACCTCACCGAACATTGTGGACGCTGCAGTACTTGTACGGGG
ACAGGTGGCGGAGTAGGGGGAGGTGGCTTGTAAACACCTGCACGTCAATGCCCC

GlySerSerIleAlaSerTrpAlaIleLysTrpGluTyryValValLeuLeuPheLeuLeu
241 TGGGGTCAAGCATCGCGTCTGGCCATTAAAGTGGAGTACGTGGCTACTCTCCTGTTCTC
ACCCAGTCTGTAAGGGAGCCGGTAATTCAACCTCATGCAGCAAGAGGACAAGGAAG

LeuAlaAspAlaArgValCysSerCysLeuTrpMetMetLeuLeuIleSerGlnAlaGlu
301 TGCTTGAGACGGGGGGCTCTGCTCTGGATGATGCTACTCATATCCCAAGGG
ACGAACGGTCTGGGGAGACGAGGAGCAACACCTACTACGATGAGATAAGGGTTGCC

AlaAlaLeuGluAsnLeuValIleLeuAsnAlaSerLeuAlaGlyThrHisGlyLeu
361 AGGGGGCTTGGAGAACCTCGTAATTACTTAATGCAGCATCCCTGGCCGGACGGCACGGTC
TCCGGCCAAACCTCTGGAGCAATTAGTCGTAATTAGTCGTAATTAGTCGTAATTAGTCG

Val
421 TTGTATC
AACATAG



FIG. 28

-----Overlap with 39c-----

1 LeuLysGluValLysAlaAlaAlaSerLysValLysAlaAsnLeuLeuSerValGluGlu
TGCTCAAGGAGGTTAAAGCAGCGCGTCAAAAGTGAAGGCTAACTTGCTATCCGTAGAGG
ACGAGTTCCCTCCAATTCGTCGCCGCAGTTCACTTCCGATTGAACGATAGGCATCTCC

61 AlaCysSerLeuThrProProHisSerAlaLysSerLysPheGlyTyrGlyAlaLysAsp
AAGCTTGCAGCCTGACGCCACACTCAGCCAAATCCAAGTTGGTTATGGGGCAAAAG
TTCGAACGTCGGACTCGCGGGGTGTGAGTCGGTTAGGTTCAAACCAATACCCGTTTC

121 ValArgCysHisAlaArgLysAlaValThrHisIleAsnSerValTrpLysAspLeuLeu
ACGTCCGTTGCCATGCCAGAAAGGCCGTAACCCACATCAACTCCGTGTGGAAAGACCTTC
TGCAGGCAACGGTACGGTCTTCCGGCATTGGGTGTAGTTGAGGCACACCTTCTGGAAAG

181 GluAspAsnValThrProIleAspThrThrIleMetAlaLysAsnGluValPheCysVal
TGGGAAGACAATGTAACACCAATAGACACTACCATCATGGCTAAGAACGAGGTTTCTGCG
ACCTTCTGTTACATTGTGGTTATCTGTGATGGTAGTACCGATTCTGCTCCAAAAGACGC

241 GlnProGluLysGlyGlyArgLysProAlaArgLeuIleValPheProAspLeuGlyVal
TTCAGCCTGAGAAGGGGGTCGTAAGCCAGCTCGTCTCATCGTGTCCCCGATCTGGCG
AAGTCGGACTCTTCCCCCAGCATTGGTCGAGCAGAGTAGCACAAGGGCTAGACCCGC

301 ArgValCysGluLysMetAlaLeuTyrAspValValThrLysLeuProLeuAlaValMet
TGCAGCGTGTGCGAAAAGATGGCTTTGTAACGACGTGGTTACAAAGCTCCCTGGCCGTGA
ACGCGCACACGCTTTCTACCGAAACATGCTGCACCAATTTGAGGGAAACCGGCACT

361 GlySerSerTyrGlyPheGlnTyrSerProGlyGlnArgValGluPheLeuValGlnAla
TGGGAAGCTCCTACGGATTCCAATACTCACCAGGACAGCGGGTTGAATTCCCTCGTGCAG
ACCCTTCGAGGATGCTAAGGTTATGAGTGGCTCTGCGCCAACTTAAGGAGCACGTT

421 TrpLysSerLysLysThrProMetGlyPheSerTyrAspThrArgCysPheAspSerThr
CGTGGAAAGTCCAAGAAAACCCAATGGGGTTCTCGTATGATACCGCTGCTTGAATCCA
GCACCTTCAGGTTTTGGGGTACCCCAAGAGCATACTATGGCGACGAAACTGAGGT

481 ValThrGluSerAspIleArgThrGluGluAla
CAGTCACTGAGAGCGACATCCGTACGGAGGAGGCA
GTCAGTGAATCTCGCTGTAGGCATGCCCTCCGT



FIG. 29

1 GluPheLeuValGlnAlaTrpLysSerLysLysThrProMetGlyPheSerTyrAspThr
GAATTCCCTCGTCAAGCGTGGAAAGTCCAAGAAAACCCCAATGGGTTCTCGTATGATACC
CTTAAGGAGCACGTTCGCACCTTCAGGTTCTTGGGGTTACCCCAAGAGCATACTATGC
-----Overlap with 35f-----
61 ArgCysPheAspSerThrValThrGluSerAspIleArgThrGluGluAlaIleTyrGln
CGCTGCTTGACTCCACAGTCACTGAGAGCGACATCCGTACGGAGGAGGCAATCTACCAA
GCGACGAAACTGAGGTGTCAGTGACTCTCGCTGTAGGCATGCCTCCTCCGTTAGATGGTT
121 CysCysAspLeuAspProGlnAlaArgValAlaIleLysSerLeuThrGluArgLeuTyr
TGTTGTGACCTCGACCCCCAAGCCCCGTGGCCATCAAGTCCCTCACCGAGAGGCTTAT
ACAACACTGGAGCTGGGGTTCGGGCGCACCGGTAGTTCAGGGAGTGGCTCTCCGAAATA
181 ValGlyGlyProLeuThrAsnSerArgGlyGluAsnCysGlyTyrArgArgCysArgAla
GTTGGGGGCCCTTACCAATTCAAGGGGGAGAACTGCGGCTATCGCAGGTGCCGCGCG
CAACCCCCGGGAGAATGGTTAAGTCCCCCTTGCACGCCATAGCGTCCACGGCGCG
241 SerGlyValLeuThrThrSerCysGlyAsnThrLeuThrCysTyrIleLysAlaArgAla
AGCGGGCGTACTGACAACTAGCTGTGGTAACACCCCTCAGTGCTACATCAAGGCCCGGCA
TCGCCGCATGACTGTTGATCGACACCATTGTGGGAGTGAACGATGTAGTTCCGGGCCCCGT
301 AlaCysArgAlaAlaGlyLeuGlnAspCysThrMetLeuValCysGlyAspAspLeuVal
GCCTGTCGAGCCGCAGGGCTCCAGGACTGCACCATGCTCGTGTGGCGACGACTTAGTC
CGGACAGCTCGCGTCCCAGGTCCCTGACGTGGTACGAGCACACACCGCTGCTGAATCAG
361 ValIleCysGluSerAlaGlyValGlnGluAspAlaAla
GTTATCTGTGAAAGCGCGGGGGTCCAGGAGGACGCGCGAG
CAATAGACACTTCGCGCCCCCAGGTCCCTGCGCCGCTC



FIG. 31

GLYAlaGlyLysArgValTyrTyrLeuThrArgAspProThrThrProLeuAlaArgAla
1 CGGGCTGGAAAGAGGGTCTACTACCTCACCCGTGACCCCTACAACCCCCCTCGCGAGGC
GCCGGACCTTTCTCCAGATGGAGTGGGCACTGGGATGTGGGGAGGGCTCTCG

Overlap with 26g

AlaTrpGluThrAlaArgHisthrProValAsnSerTrpLeuGlyAsnIleIleMetPhe
61 TGGGTGGAGACAGCAAGACACACTCCAGTCAAATTCTGGCTAGGCAAACATAATCATGTT
ACGGCACCCCTCTGTCGTCTGTGAGGTCAAGTAAGGACCGATCCGGTATTAGTACAA

AlaProThrLeuTrpAlaArgMetIleLeuMetThrHisPhePheSerValLeuIleAla
121 TGGCCCCACACTGTGGGGAGGGATGATACTGATGACCCATTCTCTTAGGGTCCCTTATAGC
ACGGGGGTGTGACACCCGGCTCTACTATGACTACTGGTAAGAAATCGCAGGAATATCG

ArgAspGlnLeuGluGlnAlaLeuAspCysGluIleTyrGlyAlaCystYrSerIleGlu
181 CAGGGGACCCAGCTTGAAACAGGGCCCTCGATTGGAGATCTACGGGGCTGCTACTCCATAGA
GTCCCTGGTCAACTGTCCGGAGCTAACGGCTCTAGATGCCGGAGCGATGAGGTATCT

ProLeuAspLeuProProIleIleGlnArgLeu
241 ACCACATTGATCTACCTCCAAATCATTCAGACTGAGTTCTGAG



FIG. 32A

1 IlePheLysIleArgMetTyrValGlyGlyValGluHisArgLeuGluAlaAlaCysAsn
1 CCATATTTAAATCAGGATGTACGTGGGAGGGGTCGAACACAGGCTGGAAGCTGCCTGCA
GGTATAAATTTAGTCCTACATGCACCCCTCCCAGCTTGTGTCGACCTTCGACGGACGT

61 TrpThrArgGlyGluArgCysAspLeuGluAspArgAspArgSerGluLeuSerProLeu
61 ACTGGACGCGGGGGCGAACGTTGCGATCTGGAAGACAGGGACAGGTCCGAGCTCAGCCGT
TGACCTGCGCCCCGCTTGCAACGCTAGACCTCTGTCCTGTCAGGCTCGAGTCGGGCA

121 LeuLeuThrThrThrGlnTrpGlnValLeuProCysSerPheThrThrLeuProAlaLeu
121 TACTGCTGACCACTACACAGTGGCAGGTCCCTCCGTGTTCTTCACAAACCTACCGCCT
ATGACGACTGGTATGTGTCACCGTCCAGGAGGGACAAGGAAGTGTGGATGGTCGGA

181 SerThrGlyLeuIleHisLeuHisGlnAsnIleValAspValGlnTyrLeuTyrGlyVal
181 TGTCCACCGGCTCATCCACCTCCACCAAGAACATTGTGGACGTGCAAGTACTTGTACGGGG
ACAGGTGGCCGGAGTAGGTGGAGGTGGTCTTGTAAACACCTGCACGTCAACATGCC

241 GlySerSerIleAlaSerTrpAlaIleLysTrpGluTyrValValLeuLeuPheLeuLeu
241 TGGGGTCAAGCATCGCTCTGGGCCATTAAGTGGGAGTACGTGCTCTCCTGTTCTTC
ACCCAGTTCTGAGCGCAGGACCCGGTAATTCACCTCATGCAGCAAGAGGACAAGGAAG

301 LeuAlaAspAlaArgValCysSerCysLeuTrpMetMetLeuLeuIleSerGlnAlaGlu
301 TGCTTGCAAGACGCGCGCGTCTGCTCTGCTTGATGATGCTACTCATATCCCAGCGG
ACGAACGCTGCGCGCAGACGAGGACAAACCTACTACGATGAGTATAGGGTTCGCC

361 AlaAlaLeuGluAsnLeuValIleLeuAsnAlaAlaSerLeuAlaGlyThrHisGlyLeu
361 AGGGCGGCTTGGAGAACCTCGTAATACTTAATGCAAGCATCCCTGGCCGGGACGCACGGTC
TCCGCCGAAACCTTGGAGCATTATGAATTACGTCGTAGGGACCAGGCCCTGCGTGCCAG

421 ValSerPheLeuValPhePheCysPheAlaTrpTyrLeuLysGlyLysTrpValProGly
421 TTGTATCCTCCTCGTGTCTCTGCTTGCATGGTATTGAAGGGTAAGTGGGTGCCCG
AACATAGGAAGGAGCACAGAACGAAACGTACCATAAACTCCCATTCAACCCACGGGC

481 AlaValTyrThrPheTyrGlyMetTrpProLeuLeuLeuLeuLeuAlaLeuProGln
481 GAGCGGGTCTACACCTCTACGGGATGTGGCCTCTCCTGCTGTTGGCGTTGCC
CTCGCCAGATGTGGAGATGCCCTACACCGGAGAGGAGGACGAGGACAACCGCAACGGGG

541 ArgAlaTyrAlaLeuAspThrGluValAlaAlaSerCysGlyGlyValValLeuValGly
541 AGCGGGCGTACCGCCTGGACACCGGAGGTGGCCGCGTCGTGGCGGTGTTCTCGTC
TCGCCCGCATGCGCACCTGTGCTCCACCGCGCAGCACACGCCACAACAGAGCAGC

601 LeuMetAlaLeuThrLeuSerProTyrTyrLysArgTyrIleSerTrpCysLeuTrpTrp
601 GGTTGATGGCGCTGACTCTGTCACCATATTACAAGCGCTATATCAGCTGGTGTGCT
CCAACCTACCGCGACTGAGACAGTGGTATAATGTTCGCGATATAGTCGACCACGAACACCA

661 LeuGlnTyrPheLeuThrArgValGluAlaGlnLeuHisValTrpIleProProLeuAsn
661 GGCTTCAGTATTTCTGACCAAGAGTGGAAAGCGCAACTGCACGTGTTGGATTCCCCCTCA
CCGAAGTCATAAAAGACTGGCTCACCTCGCGTTGACGTGACACCTAACGGGGAGGT

721 ValArgGlyGlyArgAspAlaValIleLeuLeuMetCysAlaValHisProThrLeuVal
721 ACGTCCGAGGGGGGGCGCACGCCGTATCTACTCATGTGTGCTGTACACCGACTCTGG
TGAGGCTCCCCCGCGCTGCGGCAGTAGAATGAGTACACACGACATGTGGGCTGAGACC

781 PheAspIleThrLysLeuLeuAlaValPheGlyProLeuTrpIleLeuGlnAlaSer
781 TATTTGACATCACCAAATTGCTGCTGGCGTCTCGGACCCCTTGGATTCTTCAGGCC
ATAAAACTGTAGTGGTTAACGACGACCGGCAGAACGCTGGGAAACCTAACAGGTT

841 LeuLeuLysValProTyrPheValArgValGlnGlyLeuLeuArgPheCysAlaLeuAla
841 GTTGCTTAAAGTACCCCTACTTGTGCGCGTCAAGGCCTTCTCCGGTTCTGCGCGTTAG
CAAACGAATTTCATGGGATGAAACACGCGCAGGTTCCGGAAGAGGCCAAGACGCGCAATC



FIG. 32B

ArgLysMetIleGlyGlyHisTyrValGlnMetValIleIleLysLeuGlyAlaLeuThr
901 CGCGGAAGATGATCGGAGGCCATTACGTGAAATGGTCATCATTAGTTAGGGCGCTTA
GCGCTTCACTAGCCTCCGGTAATGCACGTTACCAAGTAGTAATTCAATCCCCGCGAAT

GlyThrTyrValTyrAsnHisLeuThrProLeuArgAspTrpAlaHisAsnGlyLeuArg
961 CTGGCACCTATGTTATAACCATCTCACTCCTCTCGGGACTGGCGCACAAACGGCTTGC
GACC GTGGATACAAATATTGGTAGAGTGAGGAGAAGCCCTGACCCGCGTGTGCCGAACG

AspLeuAlaValAlaValGluProValValPheSerGlnMetGluThrLysLeuIleThr
1021 GAGATCTGGCGTGGCTGTAGAGCCAGTCGTCTCTCCAAATGGAGACCAAGCTCATCA
CTCTAGACCGGCACCGACATCTCGTCAGCAGAAGAGGGTTACCTCTGGTTCGAGTAGT

TrpGlyAlaAspThrAlaAlaCysGlyAspIleIleAsnGlyLeuProValSerAlaArg
1081 CGTGGGGGGCAGATACCGCCGCGTGCCTGACATCATCAACGGCTTGCCTGTTCCGCC
GCACCCCCCGTCTATGGCGGCCACGCCACTGTAGTAGTTGCCGAACGGACAAAGGCAGG

ArgGlyArgGluIleLeuLeuGlyProAlaAspGlyMetValSerLysGlyTrpArgLeu
1141 GCAGGGGCCGGGAGATACTGCTCGGGCCAGCCGATGGAATGGTCTCCAAGGGGTGGAGGT
CGTCCCCGGCCCTCTATGACGAGCCGGTCGGTACCTTACCAAGAGGTTCCCCACCTCCA

LeuAlaProIleThrAlaTyrAlaGlnGlnThrArgGlyLeuLeuGlyCysIleIleThr
1201 TGCTGGCGCCCCTACGGCGTACGCCAGCAGACAAGGGCCTCCTAGGGTGCATAATCA
ACGACCGCGGGTAGTGCCGATGCGGGTCGTCTGTTCCCGAGGATCCCACGTATTAGT

SerLeuThrGlyArgAspLysAsnGlnValGluGlyGluValGlnIleValSerThrAla
1261 CCAGCCTAACTGGCCGGGACAAAAACCAAGTGGAGGGTGAGGTCCAGATTGTGTCAACTG
GGTCGGATTGACCGGCCCTGTTGGTACCTCCACTCCAGGTCTAACACAGTTGAC

AlaGlnThrPheLeuAlaThrCysIleAsnGlyValCysTrpThrValTyrHisGlyAla
1321 CTGCCCAAACCTTCTGGCAACGTGCATCAATGGGTGTCTGGACTGTCTACCACGGGG
GACGGGTTGGAGGACCGTTGCACGTAGTTACCCACACGACCTGACAGATGGTGGCCCC

GlyThrArgThrIleAlaSerProLysGlyProValIleGlnMetTyrThrAsnValAsp
1381 CCGGAACGAGGACCATCGCGTACCCAAAGGGTCTGTCACTCCAGATGTATACCAATGTAG
GGCTTGCTCCTGGTAGCGCAGTGGTCCCAGGACAGTAGGTCTACATATGGTTACATC

GlnAspLeuValGlyTrpProAlaProGlnGlySerArgSerLeuThrProCyrThrCys
1441 ACCAAGACCTTGTGGCTGGCCGCTCGCAAGGTAGCCGCTCATTGACACCCCTGCACTT
TGGTCTGGAACACCCGACCGGGCGAGGGCGTTCCATCGCGAGTAACGTGGGACGTGAA

GlySerSerAspLeuTyrLeuValThrArgHisAlaAspValIleProValArgArgArg
1501 CGGGCTCCTCGGACCTTACCTGGTCACGAGGCACGCCGATGTCATTCCGTGCGCCGG
CGCCGAGGAGCCTGGAAATGGACCAAGTGCTCCGTGCGCTACAGTAAGGGCACGCCCG

GlyAspSerArgGlySerLeuLeuSerProArgProIleSerTyrLeuLysGlySerSer
1561 GGGGTGATAGCAGGGGAGCCTGCTGTCGCCCGGCCATTCTACTTGAAAGGCTCCT
CCCCACTATCGTCCCCGTCGGACAGCTGGCCGGTAAAGGATGAACTTCCGAGGA

GlyGlyProLeuLeuCysProAlaGlyHisAlaValGlyIlePheArgAlaAlaValCys
1621 CGGGGGGTCGCTGTTGTGCCCCGGGGCACGCCGTGGGCATATTAGGGCCGCGGTGT
GCCCCCCCAGGCAGAACACGGGGCGCCCCGTGCGGCACCCGTATAAATCCGGCGCCACA

ThrArgGlyValAlaLysAlaValAspPheIleProValGluAsnLeuGluThrThrMet
1681 GCACCCGTGGAGTGGCTAAGGGGGTGGACTTTATCCCTGTGGAGAACCTAGAGACAAACCA
CGTGGGCACCTCACCGATTCCGCCACCTGAAATAGGGACACCTCTGGATCTCTGGTGGT



FIG. 32C

ArgSerProValPheThrAspAsnSerSerProProValValProGlnSerPheGlnVal
1741 TGAGGTCCCCGGTGTTCACGGATAACTCCCTCCACCAGTAGTGCCCCAGAGCTTCCAGG
ACTCCAGGGGCCACAAGTGCCTATTGAGGAGAGGTGGTCATCACGGGTCTCGAAGGTCC

AlaHisLeuHisAlaProThrGlySerGlyLysSerThrLysValProAlaAlaTyrAla
1801 TGGCTCACCTCCATGCTCCCACAGGCAGCGGCAAAGCAGCAACAGGTCCCAGGCTGCATATG
ACCGAGTGGAGGTACGAGGGTGTCCGTCGCCGTTCTGGTTCCAGGGCCGACGTATAAC

AlaGlnGlyTyrLysValLeuValLeuAsnProSerValAlaAlaThrLeuGlyPheGly
1861 CAGCTCAGGGCTATAAGGTGCTAGTACTCAACCCCTCTGTTGTCACAACTGGGTTTG
GTCGAGTCCCAGTATTCCACGATCATGAGTTGGGAGACAAACGACGTTGTGACCCGAAAC

AlaTyrMetSerLysAlaHisGlyIleAspProAsnIleArgThrGlyValArgThrIle
1921 GTGCTTACATGTCCAAGGCTCATGGGATCGATCCTAACATCAGGACCGGGTGGAGAACAA
CACGAATGTACAGGTTCCGAGTACCTAGCTAGGATTGAGTCTGGCCCCACTTTGTT

ThrThrGlySerProIleThrTyrSerThrTyrGlyLysPheLeuAlaAspGlyGlyCys
1981 TTACCACTGGCAGCCCCATCACGTACTCCACCTACGGCAAGTTCCTTGCCGACGGCGGGT
AATGGTACCGTGGGGTAGTGCATGAGGTGGATGCCGTTCAAGGAACGGCTGCCGCCA

SerGlyGlyAlaTyrAspIleIleIleCysAspGluCysHisSerThrAspAlaThrSer
2041 GCTCGGGGGGGCGCTTATGACATAATAATTGTGACGAGTGCCACTCCACGGATGCCACAT
CGAGCCCCCGCGAATACTGTATTAAACACTGCTCACGGTAGGGTGCCTACGGTGA
IleLeuGlyIleGlyThrValLeuAspGlnAlaGluThrAlaGlyAlaArgLeuValVal
2101 CCATCTGGGCATGGCACTGTCTTGACCAAGCAGAGACTGCGGGGGCGAGACTGGTTG
GGTAGAACCGTAGCCGTGACAGGAACGGTTCTGTCTGACGCCCGCTCTGACCAAC

LeuAlaThrAlaThrProProGlySerValThrValProHisProAsnIleGluGluVal
2161 TGCTCGCCACCGCCACCCCTCCGGGCTCGTCACTGTGCCCATCCAAACATCGAGGAGG
ACGAGCGGTGGCGGTGGGAGGCCCCGAGGCAGTGACACGGGTAGGGTTGAGCTCCTCC

AlaLeuSerThrThrGlyGluIleProPheTyrGlyLysAlaIleProLeuGluValIle
2221 TTGCTCTGTCCACCCACCGGAGAGATCCTTTACGGCAAGGCTATCCCCCTCGAAGTAA
AACGAGACAGGGTGGTGGCCTCTAGGGAAAAATGCCGTTCCGATAGGGGGAGCTTCATT

LysGlyGlyArgHisLeuIlePheCysHisSerLysLysCysAspGluLeuAlaAla
2281 TCAAGGGGGGGAGACATCTCATTTCTGTATTCAAAGAAGAAGTGCACGAACTCGCCG
AGTTCCCCCTCTGTAGAGTAGAACAGTAAGTTCTTACGCTGCTTGAGCGGC

LysLeuValAlaLeuGlyIleAsnAlaValAlaTyrTyrArgGlyLeuAspValSerVal
2341 CAAAGCTGGTCGCATTGGGCATCAATGCCGTGGCTACTACCGCGGTCTGACGTGTCG
GTTTGCACCGCTAACCGTAGTTACGGCACCGATGATGGCGCCAGAACTGCACAGGC

IleProThrSerGlyAspValValValAlaThrAspAlaLeuMetThrGlyTyrThr
2401 TCATCCGACCGCGATGTTGTCGTGGCAACCGATGCCCTATGACCGGCTATA
AGTAGGGCTGGTCGCCGCTAACACAGCAGCACCGTGGCTACGGAGTACTGGCCGATAT

GlyAspPheAspSerValIleAspCysAsnThrCysValThrGlnThrValAspPheSer
2461 CGGGCGACTTCGACTCGGTGATAGACTGCAATACGTGTGTCACCCAGACAGTCGATTCA
GGCGCGTGAAGCTGAGCCACTATCTGACGTTATGCACACAGTGGTCTGTCAGCTAAAGT

LeuAspProThrPheThrIleGluThrIleThrLeuProGlnAspAlaValSerArgThr
2521 GCCTTGACCCCTACCTTCACCAATTGAGACAATCACGCTCCCCCAGGATGCTGTCTCCCGCA
CGGAACGGGATGGAAGTGGTAACCTGTTAGTGCAGGGGGTCTACGACAGAGGGCGT

GlnArgArgGlyArgThrGlyArgGlyLysProGlyIleTyrArgPheValAlaProGly
2581 CTCAACGTCGGGGCAGGACTGGCAGGGGAAGGCCAGGCATCTACAGATTGTGGCACCGG
GAGTTGCAGCCCCGTCCTGACCGTCCCCCTCGGTCCGTAGATGTCTAACACCGTGGCC

GluArgProSerGlyMetPheAspSerValLeuCysGluCysTyrAspAlaGlyCys
2641 GGGAGCGCCCCCTCCGGCATGTTGACTCGTCCGTCCTGAGTGTGCTATGACGCAGGCT
CCCTCGCGGGGAGGCCGTACAAGCTGAGCAGGAGACACTCACGATACTGCGTCCGA

AlaTrpTyrGluLeuThrProAlaGluThrThrValArgLeuArgAlaTyrMetAsnThr
2701 GTGCTTGGTATGAGCTACGCCCCGGAGACTACAGTTAGGCTACGAGCGTACATGAACA
CACGAACCATACTCGAGTGCAGGGCGGCTGTGATGTCATGCTCGCATGTACTTGT



FIG. 32D

ProGlyLeuProValCysGlnAspHisLeuGluPheTrpGluGlyValPheThrGlyLeu
 2761 CCCCGGGGCTTCCCGTGTGCCAGGACCATCTGAATTTGGGAGGGCGCTTTACAGGCC
 GGGGCCCCGAAGGGCACACGGCTCTGGTAGAACTTAAACCCCTCCCGCAGAAATGTCCGG
 ThrHisIleAspAlaHisPheLeuSerGlnSerGlyGluAsnLeuProTyr
 2821 TCACTCATATAGATGCCACCTTCTATCCCAGACAAAGCAGAGTGGGGAGAACCTTCCTT
 AGTAGAGTATATCTACGGGTGAAAGATAGGGTCTGTTCTCACCCCTCTTGGAAAGGAA
 LeuValAlaTyrGlnAlaThrValCysAlaArgAlaGlnAlaProProSerTrpAsp
 2881 ACCTGGTAGCGTACCAAGCCACCGTGTGCCTAGGGCTCAAGCCCCCTCCCCATCGTGGG
 TGGACCATCGCATGGTTCGGTGGCACACCGCAGTCCGAGTTGGGGAGGGTAGCACCC
 GlnMetTrpLysCysLeuIleArgLeuLysProThrLeuHisGlyProThrProLeuLeu
 2941 ACCAGATGTGGAAAGTGTGTTGATTGCCCTCAAGCCCACCCCTCCATGGGCCAACACCCCTGC
 TGGTCTACACCTTCACAAACTAAGCGGAGTCGGGTGGAGGTACCCGGTTGTGGGGACG
 TyrArgLeuGlyAlaValGlnAsnGluIleThrLeuThrHisProValThrLysTyrIle
 3001 TATACAGACTGGGCCGCTTCAAGATGAAATCACCTGACGCACCCAGTCACAAATACA
 ATATGTCAGCCCGCAGAACAGTCTTACTTAGTGGACTGCGTGGTCAGTGGTTATGT
 MetThrCysMetSerAlaAspLeuGluValValThrSerThrTrpValLeuValGlyGly
 3061 TCATGACATGCATGTCGGCCGACCTGGAGGTGTCACGAGCACCTGGGTGCTCGTGGCG
 AGTACTGTACGTACAGCCGGCTGGACCTCCAGCAGTGTGCTGTGGACCCACGAGCAACCGC
 ValLeuAlaAlaLeuAlaAlaTyrCysLeuSerThrGlyCysValValIleValGlyArg
 3121 GCGTCCTGGCTGCTTGGCCCGTATTGCCTGTCAACAGGCTGCGTGGTCATAGGGCA
 CGCAGGACCGACAAACCGGCGCATAACGGACAGTTGTCGACGCACCAGTATCACCGT
 ValValLeuSerGlyLysProAlaIleIleProAspArgGluValLeuTyrArgGluPhe
 3181 GGGTCGTCTTGTCCGGGAAGCCGGCAATCATACCTGACAGGGAAAGTCTCTACCGAGAGT
 CCCAGCAGAACAGGCCCTCGGCCGTTAGTATGGACTGTCCTCAGGAGATGGCTCTCA
 AspGluMetGluGluCysSerGlnHisLeuProTyrIleGluGlnGlyMetMetLeuAla
 3241 TCGATGAGATGGAAGAGTGTCTCAGCACTTACCGTACATCGAGCAAGGGATGATGCTCG
 AGCTACTCTACCTCTCACGAGAGTCGTGAATGGCATGTAGCTCGTCCCTACTACGAGC
 GluGlnPheLysGlnLysAlaLeuGlyLeuLeuGlnThrAlaSerArgGlnAlaGluVal
 3301 CCGAGCAGTTCAAGCAGAAAGGCCCTGGCCTCTGCAGACCGCGTCCCGTCAGGCAGAGG
 GGCTCGTCAAGTCGTCTCCGGGAGCCGGAGCGTCTGGCGCAGGGCAGTCCGTCTCC
 IleAlaProAlaValGlnThrAsnTrpGlnLysLeuGluThrPheTrpAlaLysHisMet
 3361 TTATGCCCTGCTGTCCAGACCAACTGGAAAAACTCGAGACCTCTGGCGAAGCATA
 ATAAGCAGGGGACGACAGGTCTGGTTGACCGTTTGAGCTCTGGAAAGACCCGCTCGTAT
 TrpAsnPheIleSerGlyIleGlnTyrLeuAlaGlyLeuSerThrLeuProGlyAsnPro
 3421 TGTGGAACTTCATCAGTGGATACAATACTTGGCGGGCTGTCAACGCTGCCTGGTAACC
 ACACCTTGAAGTAGTCACCCATGTTATGAACCGCCGACAGTTGCGACGGACCATTGG
 AlaIleAlaSerLeuMetAlaPheThrAlaAlaValThrSerProLeuThrThrSerGln
 3481 CCGCATTGCTTCATTGATGGCTTTACAGCTGCTGTCAACGCCCCTAACCAACTAGCC
 GGCGGTAACGAAGTAACTACCGAAAAATGTCGACGACAGTGGTCGGGTGATTGGTGATCGG
 ThrLeuLeuPheAsnIleLeuGlyGlyTrpValAlaAlaGlnLeuAlaAlaProGlyAla
 3541 AAACCCCTCTCTTCACACATATTGGGGGGGTGGCTGCCAGCTGCCGCCCCCGGTG
 TTTGGGAGGAAGTTGATAACCCCCCACCACCGACGGGTCGAGCAGGGCAGGGGCCAC
 AlaThrAlaPheValGlyAlaGlyLeuAlaGlyAlaAlaIleGlySerValGlyLeuGly
 3601 CCGCTACTGCCCTTGTGGCGCTGGCTAGCTGGCGCCGCCATGGCAGTGTGGACTGG
 GGCAGTGACGGAAACACCCGCGACCGAACATGACCGCGGGTAGCCGTACAACCTGACC
 LysValLeuIleAspIleLeuAlaGlyTyrGlyAlaGlyValAlaIaGlyAlaLeuValAla
 3661 GGAAGGTCTCATAGACATCCTGCAAGGGTATGGCGCGGGCGTGGCGGGAGCTCTGTGG
 CCTTCCAGGAGTATCTGAGGAACTGCTCCATACCGCGCCCGCACCGCCCTCGAGAACACC
 PheLysIleMetSerGlyGluValProSerThrGluAspLeuValAsnLeuLeuProAla
 3721 CATTCAAGATCATGAGCGGTGAGGTCCCCTCCACGGAGGACCTGGTCATCTACTGCCG
 GTAAAGTTCTAGTACTCGCCACTCCAGGGGAGGTGCCTCCTGGACCAAGTTAGATGACGGGC



FIG. 32E

11eLeuSerProGlyAlaLeuValValGlyValValCysAlaAlaIleLeuArgArgH1s
 3781 CCATCCTCTGCCCGAGCCCTCGTAGTCGGCGTGGCTGTGAGCAATACTGCGCCGGC
 GGTAGGAGAGCGGGCTCGGGAGCATCAGCCGACCAAGACACGTCATTGACGCGGCCG

 ValGlyProGlyGluGlyAlaValGlnTrpMetAsnArgLeuIleAlaPheAlaSerArg
 3841 ACGTTGGCCCGGGCGAGGGGGCAGTGCAGTGGATGAACCGGCTGATAGCCTCGCCTCCC
 TGCAACCGGGCCGCTCCCCCGTCACGTACCTACTTGGCCGACTATCGGAAGCGGAGGG

 GlyAsnHisValSerProThrHisTyrValProGluSerAspAlaAlaAlaArgValThr
 3901 GGGGGAAACCATGTTCCCCACGCACTACGTGCCGGAGAGCGATGCAGCTGCCCGGTCA
 CCCCCCTGGTACAAAGGGGGTGCCTGATGCACGGCCTCTCGCTACGTCACGGCGCAGT

 AlaIleLeuSerSerLeuThrValThrGlnLeuLeuArgArgLeuHisGlnTrpIleSer
 3961 CTGCCATACTCAGCAGCCTCACTGTAACCCAGCTCTGAGGCAGTCACCAAGTGGATAA
 GACGGTATGAGTCGGAGTGACATTGGTGCAGGACTCCGCTGACGTGGTCACCTATT

 SerGluCysThrThrProCysSerGlySerTrpLeuArgAspIleTrpAspTrpIleCys
 4021 GCTCGGAGGTGACCACTCCATGCTCCGGTTCTGGCTAAGGGACATCTGGGACTGGATAT
 CGAGCCTCACATGGTGAGGTACGAGGCCAAGGACCGATTCCCTGTAGACCCCTGACCTATA

 GluValLeuSerAspPheLysThrTrpLeuLysAlaLysLeuMetProGlnLeuProGly
 4081 GCGAGGTGTTGAGCGACTTAAGACCTGGCTAAAAGCTAAAGCTATGCCACAGCTGCCTG
 CGCTCCACAACTCGCTGAAATTCTGGACCGATTTCGATTGAGTACGGTGTGACGGAC

 IleProPheValSerCysGlnArgGlyTyrLysGlyValTrpArgValAspGlyIleMet
 4141 GGATCCCCTTGTGTCCTGCCAGCGCGGGTATAAGGGGGTCTGGCAGTGGACGGCATCA
 CCTAGGGAAACACAGGACGGTCGCGCCCATTCTCCCCAGACCGCTCACCTGCCGTAGT

 HisThrArgCysHisCysGlyAlaGluIleThrGlyHisValLysAsnGlyThrMetArg
 4201 TGCACACTCGCTGCCACTGTGGAGCTGAGATCACTGGACATGTCAAAAACGGGACGATGA
 ACGTGTGAGCGACGGTACACCTCGACTTAGTACACTGTACAGTTTGCCCTGCTACT

 IleValGlyProArgThrCysArgAsnMetTrpSerGlyThrPheProIleAsnAlaTyr
 4261 GGATCGTCGGTCTAGGACCTGCAGGAACATGTGGAGTGGGACCTTCCCCATTATGCC
 CCTAGCAGCAGGATCTGGACGTCTGTACACCTCACCTGGAAAGGGTAATTACGGA

 ThrThrGlyProCysThrProLeuProAlaProAsnTyrThrPheAlaLeuTrpArgVal
 4321 ACACCACGGGCCCCCTGTACCCCCCTCTGCCCGAACTACACGTCGCGCTATGGAGGG
 TGTGGTGCCGGGGACATGGGGGAAGGACCGGGCTTGATGTGCAAGCGCGATAACCTCCC

 SerAlaGluGluTyrValGluIleArgGlnValGlyAspPheHisTyrValThrGlyMet
 4381 TGCTGCAGAGGAATATGTGGAGATAAGGCAGGTGGGGACTTCCACTACGTGACGGGTA
 ACAGACGTCTCCTATACACCTCTACCGTCCACCCCTGAAGGTGATGCACTGCCCAT

 ThrThrAspAsnLeuLysCysProCysGlnValProSerProGluPhePheThrGluLeu
 4441 TGAATGACTGACAATCTCAAATGCCGTGCCAGGTCCCCTGCCGAATTTTACAGAAAT
 ACTGATGACTGTTAGAGTTACGGGACGGTCCAGGGTAGCGGGCTTAAAAGTGTCTTA

 AspGlyValArgLeuHisArgPheAlaProProCysLysProLeuLeuArgGluGluVal
 4501 TGGACGGGGTGCCTACATAGGTTGCGCCCCCTGCAAGCCCTGCTGGGGAGGAGG
 ACCTGCCACCGGATGTATCCAAACGCGGGGACGTTGGGAACGACGCCCTCCTCC

 SerPheArgValGlyLeuHisGluTyrProValGlySerGlnLeuProCysGluProGlu
 4561 TATCATTCAAGAGTAGGACTCCACGAATACCCGGTAGGGTCGCAATTACCTTGCGAGCCCG
 ATAGTAAGTCTCATCCTGAGGTGCTTATGGGCCATCCAGCGTTATGGAACGCTCGGG

 ProAspValAlaValLeuThrSerMetLeuThrAspProSerHisIleThrAlaGluAla
 4621 AACCGGACGTGGCGTGTGACGTCATGCTCACTGATCCCTCCATATAACAGCAGAGG
 TTGGCCTGCACCGGACAACTGCAGGTACGAGTACTAGGGAGGGTATATTGTCGTCTCC

 AlaGlyArgArgLeuAlaArgGlySerProProSerValAlaSerSerAlaSerGln
 4681 CGGCCGGCGAAGGTTGGCGAGGGGATCACCCCCCTCTGGCCAGCTCCTCGGCTAGCC
 GCCGGCCCGCTCCAAACCGCTCCCTAGTGGGGGAGACACCGGTGAGGGAGCCGATCGG

 LeuSerAlaProSerLeuLysAlaThrCysThrAlaAsnHisAspSerProAspAlaGlu
 4741 AGCTATCCGCTCATCTCAAGGCAACTTGACCGCTAACCATGACTCCCTGATGCTG
 TCGATAGGCAGGTAGAGAGTTCCGTTGAACGTGGCGATTGGTACTGAGGGGACTACGAC



FIG. 32F

LeuIleGluAlaAsnLeuLeuTrpArgGlnGluMetGlyGlyAsnIleThrArgValGlu
 4801 AGCTCATAGAGGCCAACCTCCTATGGAGGCAGGAGATGGCGGCAACATCACCAAGGGTTG
 TCGAGTATCTCCGGTTGGAGGATACCTCCGTCCTCACCCGCCGTTGAGTGGTCCCCAAC

 SerGluAsnLysValValIleLeuAspSerPheAspProLeuValAlaGluGluAspGlu
 4861 AGTCAGAAAACAAAGTGGTATTCTGGACTCTCGATCCGCTTGTGGCGGAGGGAGGACG
 TCAGTCTTTGTTCACCACTAACGACCTGAGGAAGCTAGGCGAACACCGCCTCCTCCTGC

 ArgGluIleSerValProAlaGluIleLeuArgLysSerArgArgPheAlaGlnAlaLeu
 4921 AGCGGGAGATCTCCGTACCCGCAGAAAATCTGCGGAAGTCTCGGAGATTGCCAGGCC
 TCGCCTCTAGAGGCATGGCGTCTTAGGACGCCAGAGCCTCTAGCGACCCTAACGGGTCCGG

 ProValTrpAlaArgProAspTyrAsnProProLeuValGluThrTrpLysLysProAsp
 4981 TGCCCGTTGGCGCGCCGGACTATAACCCCCCGCTAGTGGAGACGTGGAAAAAGCCG
 ACGGGCAAACCCGCGCCCTGATATTGGGGGCGATCACCTCTGCACCTTTCGG

 TyrGluProProValValHisGlyCysProLeuProProProLysSerProProValPro
 5041 ACTACGAACCACCTGTGGTCCATGGCTGTCCGCTTCCACCTCAAAGTCCCCTGTGC
 TGATGCTTGGTGGACACCAGGTACCGACAGGCGAAGGTGGAGGTTTAGGGGAGGACACG

 ProProArgLysLysArgThrValValLeuThrGluSerThrLeuSerThrAlaLeuAla
 5101 CTCCGCCTCGGAAGAACGGGACGGTGGCTCTCACTGAATCAACCTATCTACTGCCTTGG
 GAGGCGGAGCCTTCTCGCCGCCAGGAGTGAATTAGTTGGGATAGATGACGGAAC

 GluLeuAlaThrArgSerPheGlySerSerSerGlyIleThrGlyAspAsnThr
 5161 CCGAGCTCGCACCAGAACGCTTGGCAGCTCCTCAACTTCCGGCATTACGGGCACAATA
 GGCTCGAGCGGTGGTCTCGAAACCGTCGAGGAGTTGAAGGCCGTAATGCCGCTGTTAT

 ThrThrSerSerGluProAlaProSerGlyCysProProAspSerAspAlaGluSerTyr
 5221 CGACAAACATCCTCTGAGCCCCGCCCCCTCTGGCTGCCCCCCCGACTCCGACGCTGAGTCCT
 GCTGTTGAGGAGACTCGGGCGGGGAGACCGACGGGGGGCTGAGGCTGCGACTCAGGA

 SerSerMetProProLeuGluGlyGluProGlyAspProAspLeuSerAspGlySerTrp
 5281 ATTCCCTCATGCCCCCCCCTGGAGGGGGAGCCTGGGATCGGATCTTAGCGACGGGTCA
 TAAGGAGGTACGGGGGGACCTCCCCCTCGGACCCCTAGGCCAGAATCGTCCCCAGTA

 SerThrValSerSerGluAlaAsnAlaGluAspValValCysCysSerMetSerTyrSer
 5341 GGTCAACGGTCAGTAGTGAGGCCAACCGCGGAGATGTCGTGCTGCTCAATGCTTACT
 CCAGITGCCAGTCATCACTCCGGTGCCTCTACAGCACAGCACGAGTTACAGAATGA

 TrpThrGlyAlaLeuValThrProCysAlaAlaGluGluGlnLysLeuProIleAsnAla
 5401 CTTGGACAGGGCACTCGTCACCCCGTGCGCCGCGGAAGAACAGAAACTGCCATCAATG
 GAACCTGTCCCGGTGAGCAGTGGTAAACCACTAAGGTGGAGTGCCTAC

 LeuSerAsnSerLeuLeuArgHisHisAsnLeuValTyrSerThrThrSerArgSerAla
 5461 CACTAAGCAACTCGTTGCTACGTACCCACAATTGGTGTATTCCACCACTCACGCAGTG
 GTGATTGTTGAGCAACGATGCACTGGTAAACCACTAAGGTGGAGTGCCTAC

 CysGlnArgGlnLysLysValThrPheAspArgLeuGlnValLeuAspSerHisTyrGln
 5521 CTTGCCAAAGGCAGAACGAAAGTCACATTGACAGACTGCAAGTTCTGGACAGCCATTACC
 GAACGGTTCCGTCTTCAAGTGTAAACTGTCTGACGTTCAAGACCTGCGGTAATGG

 AspValLeuLysGluValLysAlaAlaAlaSerLysValLysAlaAsnLeuLeuSerVal
 5581 AGGACGTTACTCAAGGAGGTTAAAGCAGCGCGTCAAAAGTGAAGGCTAACCTGCTATCCG
 TCCTGCATGAGTTCCCAATTGTCGCCGCAAGTTTCACTTCCGATTGAACGATAGGC

 GluGluAlaCysSerLeuThrProProHisSerAlaLysSerLysPheGlyTyrGlyAla
 5641 TAGAGGAAAGCTTGCAGCCGACGCCACACTCAGCCAATCCAAGTTGGTTATGGGG
 ATCTCCCTCGAACGTCGGACTGCCGGGTGTGAGTCGGTTAGGTTCAAACCAATACCCC

 LysAspValArgCysHisAlaArgLysAlaValThrHisIleAsnSerValTrpLysAsp
 5701 CAAAAGACGTCGTTGCCATGCCAGAACGGCGTAACCCACATCAACTCCGTGTTGGAAAG
 GTTTCTGCAGGCCAACGGTACGGTCTTCCGGCATTGGGTAGTTGAGGCAACACCTTTC

 LeuLeuGluAspAsnValThrProIleAspThrThrIleMetAlaLysAsnGluValPhe
 5761 ACCTTCTGGAAGAACAAATGTAACACCAATAGACACTACCATCATGGCTAAGAACGAGGTTT
 TGGAAAGACCTCTGTTACATTGTTAGTGTGATGGTAGTACCGATTCTGCTCCAAA



FIG. 32G

CysValGlnProGluLysGlyGlyArgLysProAlaArgLeuIleValPheProAspLeu
5821 TCTGCGTTCAGCCTGAGAAGGGGGGTCGTAAGCCAGCTCGTCTCATCGTGTCCCCGATC
AGACGCAAGTCGGACTCTCCCCCAGCATTGGTCAGCAGAGTAGCACAGGGCTAG
GlyValArgValCysGluLysMetAlaLeuTyrAspValValThrLysLeuProLeuAla
5881 TGGGCGTGCAGCTGTCGAGAAAAGATGGCTTGTACGACGTGGTTACAAAGCTCCCCCTGG
ACCCGACAGCGCACACGCTTCTACCGAAACATGCTGCACCAATGTTCGAGGGAAACC
ValMetGlySerSerTyrGlyPheGlnTyrSerProGlyGlnArgValGluPheLeuVal
5941 CCGTGATGGGAAGCTCCTACGGATTCCAATACTCACCAGGACAGCGGGTTGAATTCTCG
GGCACTACCCCTTCGAGGATGCCTAAGGTTATGAGTGGTCTGTCGCCAACCTAACGGAGC
GlnAlaTrpLysSerLysThrProMetGlyPheSerTyrAspThrArgCysPheAsp
6001 TGCAAGCGTGGAAAGTCCAAGAAAACCCCAATGGGGTTCTCGTATGATAACCGCTGCTTTG
ACGTTCGCACCTTCAGGTTCTTGGGGTTACCCCAAGAGCATACTATGGCGACGAAAC
SerThrValThrGluSerAspIleArgThrGluGluAlaIleTyrGlnCysCysAspLeu
6061 ACTCCACAGTCACTGAGAGCGACATCCGTAACGGAGGAGGCAATCTACCAATGTTGTGACC
TGAGGTGTCAGTGAATCTCGCTGTAGGCATGCCTCCCGTTAGATGGTTACAACACTGG
AspProGlnAlaArgValAlaIleLysSerLueThrGluArgLeuTyrValGlyGlyPro
6121 TCGACCCCCAAGCCCGTGGCCATCAAGTCCCTCACCGAGAGGGCTTATGTTGGGGCC
AGCTGGGGGTTCGGGCGCACCGGTAGTCAGGGAGTGGCTCTCCGAAATACAACCCCGG
LeuThrAsnSerArgGlyGluAsnCysGlyTyrArgArgCysArgAlaSerGlyValLeu
6181 CTCCTACCAATTCAAGGGGGGAGAACTGCGGCTATCGCAGGTGCCGCGAGCGCGTAC
GAGAATGGTTAACGTTCCCCCTTGTACGCGCATAAGCTCCACGGCGCGCTCGCCGATG
ThrThrSerCysGlyAsnThrLeuThrCysTyrIleLysAlaArgAlaAlaCysArgAla
6241 TGACAACTAGCTGGTAACACCCCTCACTTGCTACATCAAGGCCCGGGCAGCCTGTCGAG
ACTGTTGATGACACCATTGTGGGAGTGAACGATGTAAGTCCGGGCCCCGTCGGACAGCTC
AlaGlyLeuGlnAspCysThrMetLeuValCysGlyAspAspLeuValValIleCysGlu
6301 CCGCAGGGCTCCAGGACTGCACCATGCTCGTGTGGCAGCAGCTTAGTCGTTATCTGTG
GGCGTCCCGAGGTCTGACGTGGTACGAGCACACACCGCTGTAATCAGCAATAGACAC
SerAlaGlyValGlnGluAspAlaAlaSerLeuArgAlaPheThrGluAlaMetThrArg
6361 AAAGCGGGGGGTCAGGAGGACGCGGGAGCCTGAGAGCCTCACGGAGGCTATGACCA
TTTCGCGCCCCCAGGTCTCTCGCGCCGCTCGACTCTCGGAAGTGCCTCCGATACTGGT
TyrSerAlaProProGlyAspProProGlnProGluTyrAspLeuGluLeuIleThrSer
6421 GGTACTCCGCCCTGGGGACCCCCACAACCAACAGACTGGAGCTCATAACAT
CCATGAGGGCGGGGGGGACCCCTGGGGGGTCTTATGCTGAACCTCGAGTATTGTA
CysSerSerAsnValSerValAlaHisAspGlyAlaGlyLysArgValTyrTyrLeuThr
6481 CATGCTCTCCAACGTGTCAGTCGCCACGACGGCGCTGGAAAGAGGGCTACTACCTCA
GTACGAGGAGGTTGCACAGTCAGCGGGTCTGCCGCGACCTTCTCCAGATGATGGAGT
ArgAspProThrThrProLeuAlaArgAlaAlaTrpGluThrAlaArgHisThrProVal
6541 CCCGTGACCCCTACAACCCCCCTCGCGAGAGCTGCGTGGGAGACAGCAAGACACACTCCAG
GGCACTGGGATGTTGGGGGAGCGCTCTCGACGCACCTCTGTCGTTGTGAGGTC
AsnSerTrpLeuGlyAsnIleIleMetPheAlaProThrLeuTrpAlaArgMetIleLeu
6601 TCAATTCTGGCTAGGCAACATAATCATGTTGGCCCCACACTGTGGCGAGGATGATAC
AGTTAAGGACCGATCCGTTGATTAGTACAACGGGGGTGTGACACCCGCTCTACTATG
MetThrHisPhePheSerValLeuIleAlaArgAspGlnLeuGluGlnAlaLeuAspCys
6661 TGATGACCCATTCTTAGCGTCCTATAGCCAGGGACAGCTGAAACAGGCCCTCGATT
ACTACTGGGTAAAGAAATCGCAGGAATATCGGTCCCTGGTCGAACCTGTCCGGGAGCTAA
GluIleTyrGlyAlaCysTyrSerIleGluProLeuAspLeuProProIleIleGlnArg
6721 GCGAGATCTACGGGGCCTGCTACTCCATAGAACCACTTGATCTACCTCAAATATTCAA
CGCTCTAGATGCCCGGACGATGAGGTATCTGGTGAACTAGATGGAGGTTAGTAAGTT
Leu
6781 GACTC
CTGAG



FIG. 33

Lane Number	Chimp Reference Number	Infection Type	Sample date (days) (0=inoculation day)	ALT (alanine aminotransferase level in sera) mU/ml
1	1	NANB	0	0
2	1	NANB	76	71
3	1	NANB	118	19
4	1	NANB	154	N/A
5	2	NANB	0	0
6	2	NANB	21	52
7	2	NANB	73	13
8	2	NANB	138	N/A
9	3	NANB	0	8
10	3	NANB	43	205
11	3	NANB	53	14
12	3	NANB	159	6
13	4	NANB	-3	11
14	4	NANB	55	132
15	4	NANB	83	N/A
16	4	NANB	140	N/A
17	5	HAV	0	4
18	5	HAV	25	147
19	5	HAV	40	18
20	5	HAV	268	5
21	6	HAV	-8	N/A
22	6	HAV	15	100
23	6	HAV	41	10
24	6	HAV	129	N/A
26	7	HAV	0	7
27	7	HAV	22	83
28	7	HAV	115	5
29	7	HAV	139	N/A
30	8	HAV	0	15
31	8	HAV	26	130
32	8	HAV	74	8
33	8	HAV	205	5
34	9	HBV	-290	N/A
35	9	HBV	379	9
36	9	HBV	435	6
37	10	HBV	0	8
38	10	HBV	111-118 (pool)	96-156 (pool)
39	10	HBV	205	9
40	10	HBV	240	13
41	11	HBV	0	11
42	11	HBV	28-56 (pool)	8-100 (pool)
43	11	HBV	169	9
44	11	HBV	223	10

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FIG. 33A

CHIMPS

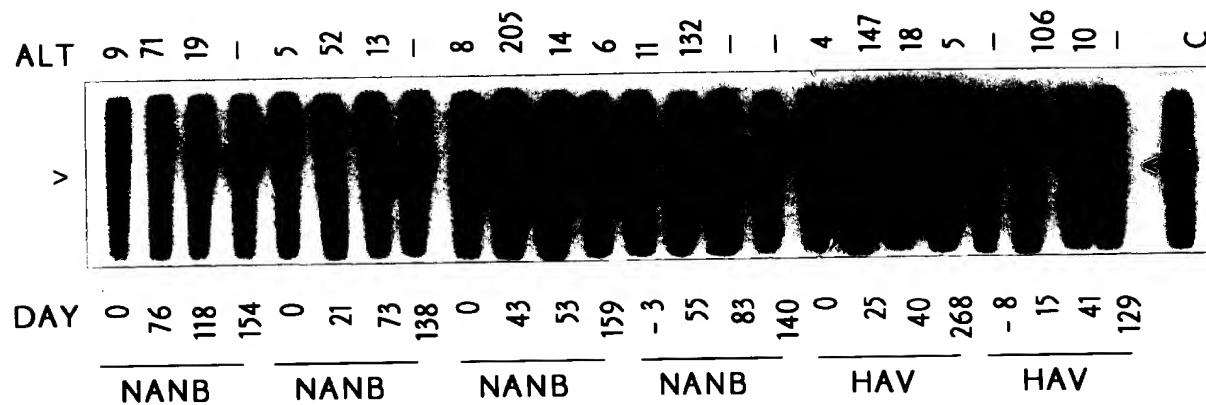


FIG. 33B

CHIMPS

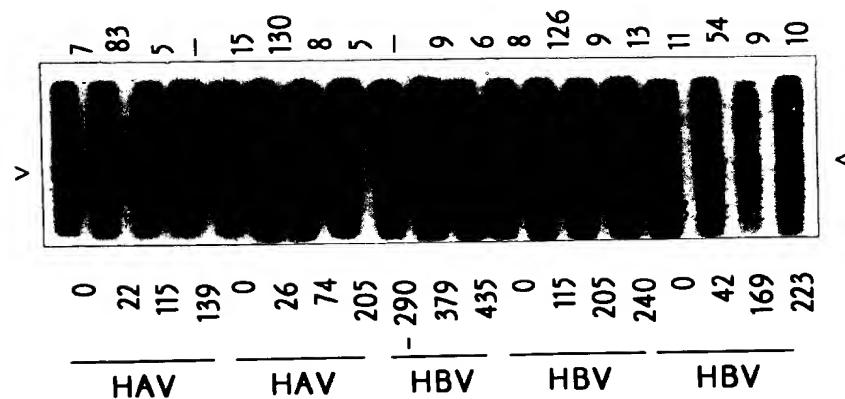


FIG. 34

Lane Number	Patient Reference Number	Diagnosis	ALT Level (mu/ml)
1	1 ¹	NANB	1354
2	1 ¹	NANB	31
3	2 ¹	NANB	14
4	2 ¹	NANB	79
5	2 ¹	NANB	26
6	3 ¹	NANB	78
7	3 ¹	NANB	87
8	3 ¹	NANB	25
9	4 ¹	NANB	60
10	4 ¹	NANB	13
11	5 ¹	NANB	298
12	5 ¹	NANB	101
13	6 ¹	NANB	474
14	6 ¹	NANB	318
15	7 ¹	NANB	20
16	7 ¹	NANB	163
17	8 ¹	NANB	44
18	8 ¹	NANB	50
19	9	NANB	N/A
20	10	NANB	N/A
21	11	NANB	N/A
22	12	Normal	N/A
23	13	Normal	N/A
24	14	Normal	N/A
26	30174	Normal	N/A
27	30105	Normal	N/A
28	30072	Normal	N/A
29	30026	Normal	N/A
30	30146	Normal	N/A
31	30250	Normal	N/A
32	30071	Normal	N/A
33	15	AcuteHAV	N/A
34	16	AcuteHAV	N/A
35	17	AcuteHAV	N/A
36	18	AcuteHAV	N/A
37	48088	AcuteHAV	N/A
38	47288	AcuteHAV	N/A
39	47050	AcuteHAV	N/A
40	46997	AcuteHAV	N/A
41	19	Convalescent HBV	N/A
42	20	(anti-HBSag+ve;	N/A
43	21	anti-HBCag+ve)	N/A
44	22	(anti-HBSag+ve;	N/A
45	23	anti-HBCag+ve)	N/A
46	24	(anti-HBSag+ve;	N/A
47	25	anti-HBCag+ve)	N/A
48	26	(anti-HBSag+ve;	N/A
49	27	anti-HBSag+ve)	N/A

¹Sequential serum samples were assayed from these patients

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FIG. 34A

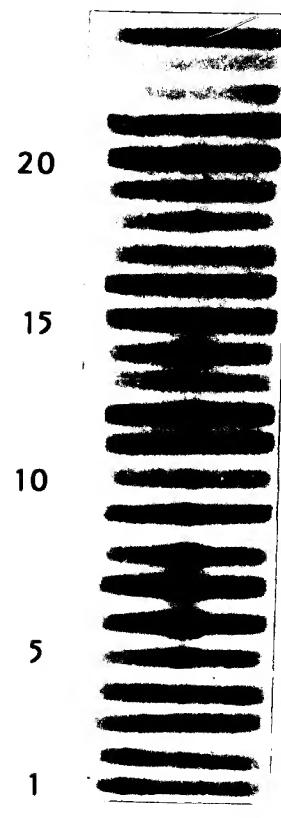


FIG. 34B

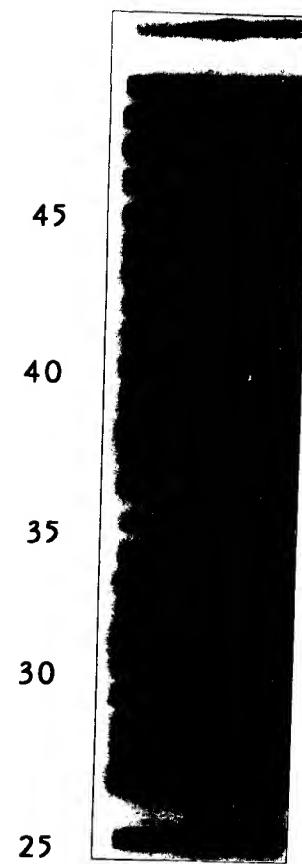




FIG. 35

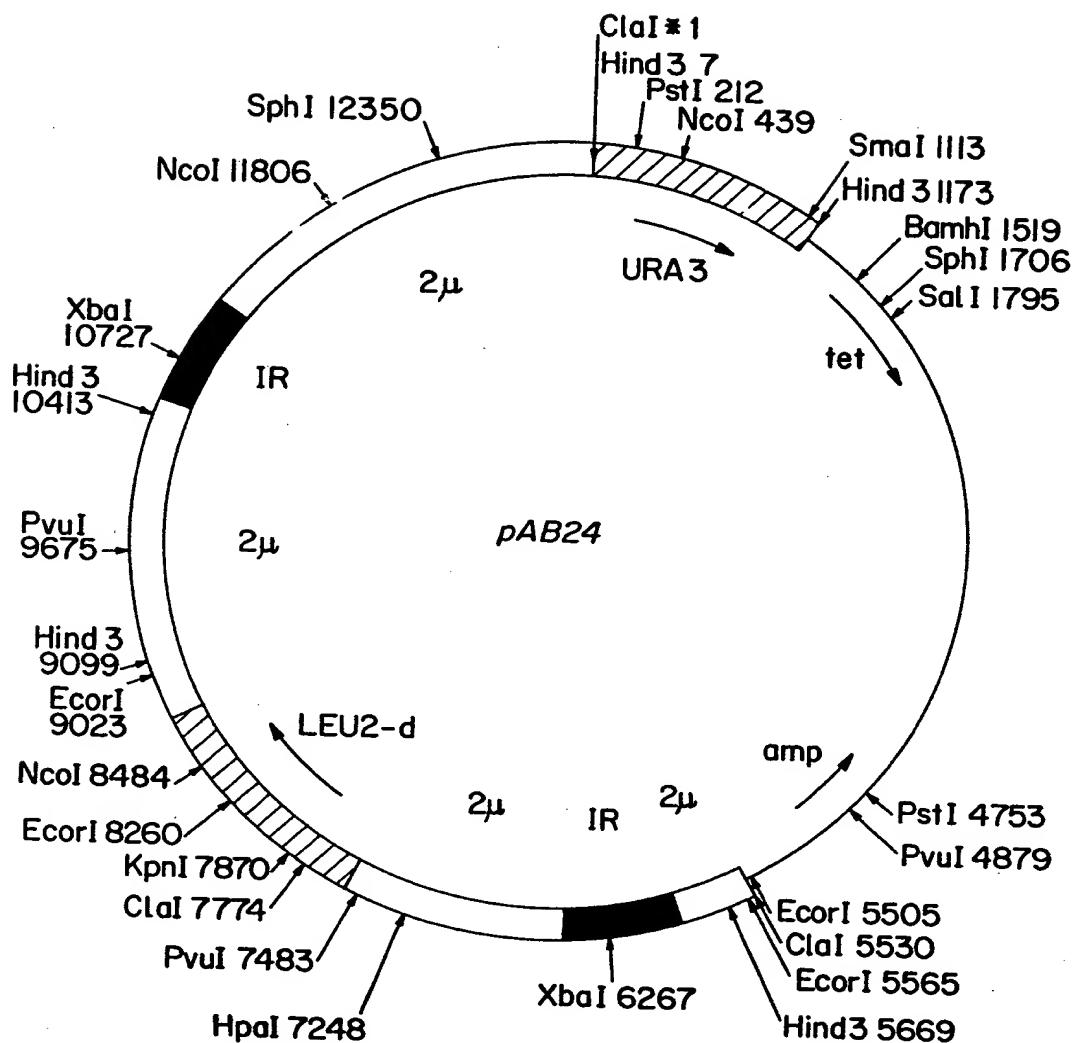




FIG. 36A



FIG. 36B

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FIG. 37A

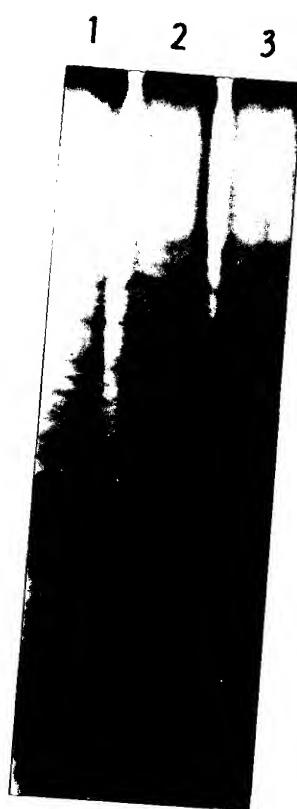


FIG. 37B

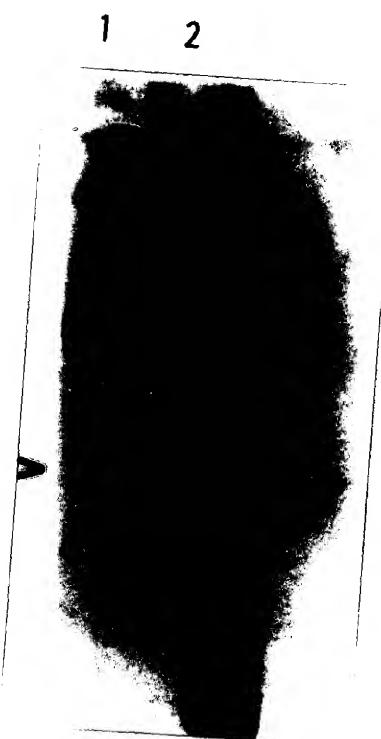




FIG. 42A

HCV	10	20	30	40	50
	EYVLLFLLADARVCSC	LWMMLLISQAEAALEN	VILNAASLAGTHGLVSFLVFFCFA		
MNWVD1	130	140	150	160	170
HCV	60	70	80	90	100
	WYLKGKWVPGAVYT	FYGMWPLL	LLALPQRAYALD	TEVAASC	GGVVVLVGLMALT
MNWVD1	190	200	210	220	230
HCV	120	130	140	150	160
	KRYISWCLWWLQYFLTR	VEAQLH	WIPPLNVRGG	RD	CAVHPTLVFDIT
MNWVD1	250	260	270	280	290
HCV	180	190	200	210	220
	GPLWILQASLLKVPYF	-VRVQGLLRF	-CALARKMIGGHYVQMVI	I	KGALTGT
MNWVD1	300	310	320	330	340
HCV	240	250	260	270	280
	TPLRDWAHNGLRDLA	VEPVVFSQ	METKL	ITWGADTAAC	CDI
MNWVD1	360	370	380	390	400
HCV	300	310	320	330	340
	PADGMVSKGW	RLLAPITAYA	QQTRG	LLGCI	ITSLTGRDKNQV
MNWVD1	420	430	440	450	460
HCV	360	370	380	390	400
	INGVCWT	VYHGAG	TRTIASPKGPV	IQMYTNVDQ	DLV
MNWVD1	480	490	500	510	520
HCV	420	430	440	450	460
	LYLVTRHAD	IPVRRRGDSRG	SLLSPRPISY	LKGSSGG	PLCPAGH
MNWVD1	540	550	560	570	580



FIG. 42B

HCV	480	490	500	510	520	530
MNWVD1	ÄYVSAIAQTEK--SIEDNPEI	EDDIFRK--RKL	IMDLHPGÄGKT	KRYLPAIVRGAIKR		
	600	610	620	630	640	
HCV	540	550	560	570	580	
MNWVD1	GYKVLVLNPS--VAATLGFGAYMSKAHGIDPNIRTGVRTITGSPITYSTY	GYKFLADGGC				
	650	660	670	680	690	700
HCV	590	600	610	620	630	640
MNWVD1	RVPNYNLIIIMDEAHFTDPÄSIAÄRGYI	STRVÉ-MGÄAAGI	EMTATPPGSRD-PFPQSNÄP			
	710	720	730	740	750	760
HCV	650	660	670	680	690	700
MNWVD1	ALSTTGEIPFYGKAIPLEVIGGRRHLIFCHSKKKCDELA	AKLVALGINAVAYYRGLDVS				
	770	780	790	800	810	820
HCV	710	720	730	740	750	760
MNWVD1	IPTSGDVVVVATDALMTGYTGDFDSVIDCNTCVTVD	FSLDPTFTIETITLPQDAVSRT				
	830	840	850	860	870	880
HCV	770	780	790	800	810	820
MNWVD1	SEYVKTRTNDFVVT	DISEMGANFKA	ERVIDPRRCMKPVILTDGEERV	VILAGPMPVTH		
HCV	QRRGRTGRGKPGIYRFVAPGERPSGMFDSSV	CECYDAGCA	WYELTPAETTVRLRAYMNT			
MNWVD1	SS					



FIG. 43

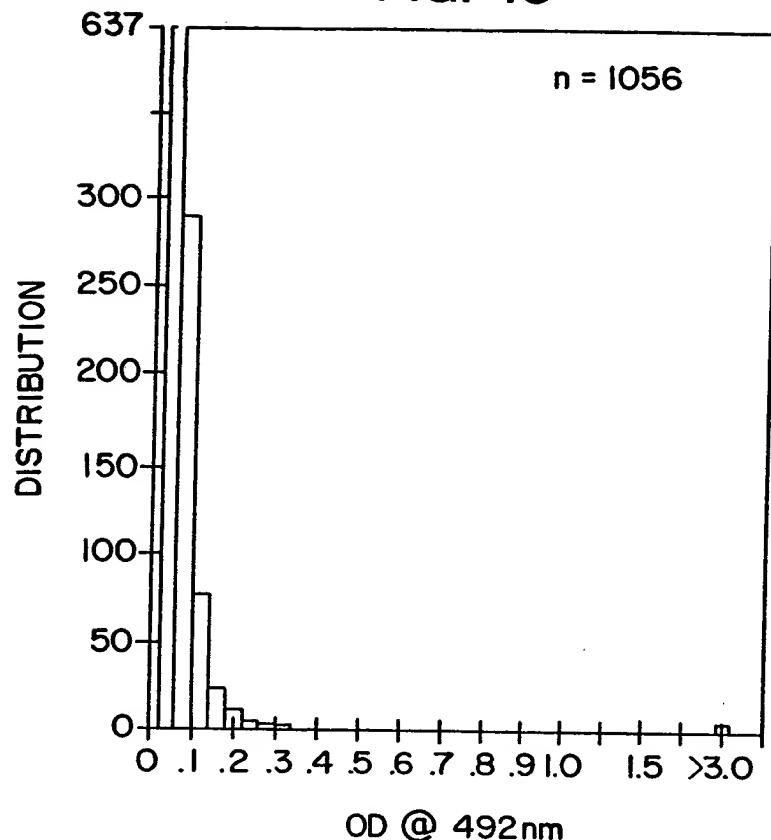


FIG. 44

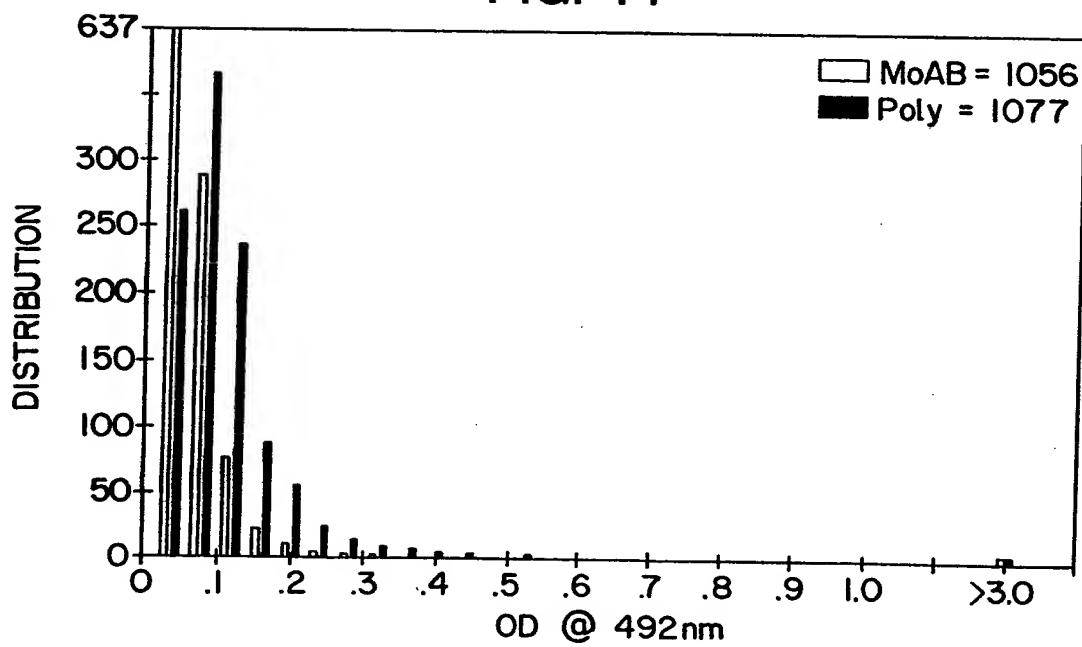




FIG. 45

<u>Name</u>	<u>Common Sequence</u>	<u>Variable Sequence</u>
5'-3-1	AAGCTTGATCGAATTC	CGATCTTGC
-2		CGATCCTGC
-3		CGATCATGC
-4		CGATCGTGC
-5		CGAAGTTGC
-6		CGAAGCTGC
-7		AGATCTTGC
-8		AGATCCTGC
-9		AGATCATGC
-10		AGATCGTGC
-11		AGAAGTTGC
-12		AGAAGCTGC
-13		CGATCTTGT
-14		CGATCCTGT
-15		CGATCATGT
-16		CGATCGTGT
-17		CGAAGTTGT
-18		CGAAGCTGT
-19		AGATCTTGT
-20		AGATCCTGT
-21		AGATCATGT
-22		AGATCGTGT
-23		AGAAGTTGT
-24		AGAAGCTGT
-25		CGCTCTTGC
-26		CGCTCCTGC
-27		CGCTCATGC
-28		CGCTCGTGC
-29		CGCAGTTGC
-30		CGCAGCTGC
-31		CGCTCTTGT
-32		CGCTCCTGT
-33		CGCTCATGT
-34		CGCTCGTGT
-35		CGCAGTTGT
-36		CGCAGCTGT



FIG. 46A

GLYCYS PROGLU ARG LEU ALA SER CYS ARG PRO LEU THR ASP PHE ASP GLN GLY TRP GLY
1 CAGGCT GTCCCT TAG CCT GAGGGCT TAG CCT AGCT GCG ACC CTT ACC GATT T GACCA GGG CT GGG
GTC CGAC AGG ACT CCT CGAT CGGT CGAC GG CT GGG GAAT GCT AAA ACT GGT CCC GAC CC

Pro Ile Ser Tyr Ala Asn Glu Ser Gly Pro Asp Glu Arg Pro Ty r Cys Trp His Tyr Pro
61 GCC CTAT CAG TT ATGCC AAAC CGG AAG CGG CCCC GAC CCAG CG CCCT ACT GCT GGC ACT ACC
CGG ATAG TCA ATAC GGT TGC CT TGC CGGG CT GGT CG CGGG AT GAC GAC CG GT GAT GG

Pro Lys Pro Cys Glu Ile Val Pro Ala Lys Ser Val Cys Glu Pro Val Tyr Cys Phe Thr
121 CCC CAA AAC CCT TGG GT AT TGT GCC CGG AAG AGT GT GT GG T CCG GT AT AT GCT TCA
GGG GT TT GG AA AC G CC AT AA CAC G G G C TT CT CAC AC AC ACC G G CC AT AT AAC G AAG T

Pro Ser Pro Val Val Val Glu Ile Thr Thr Asp Arg Ser Gly Ala Pro Thr Tyr Ser Thr P G L Y
181 CTCC CAG CCC GT GGT GGG AAC CG AAC GG AC AGG T C G G G C C C C C C C C C C C C
GAG GGT CG GGG AAC ACC ACC CCT GCT GGT CCAG G C

Glu Asn Asp Thr Asp Val Phe Val Leu Asn Asn Thr Arg Pro Pro Leu Glu Asn Trp Phe
241 GTG AAA ATG ATAC GG GAC GT CTT CCT TA CA AA T ACC AG G CC AC CG G CC AC CG G CC AT T G G T
CA CT T T A C T AT G C C T G C A G A G C A G G A A T T G T T A T G G T C C G G G C A C C C G T T A A C C A

Gly Cys Thr Trp Met Asn Ser Thr Gly Phe Thr Lys Val Cys Gly Ala Pro Pro Cys Val
301 TCG GT TGT ACCT GGT ATG AACT CA ACT GG ATTC ACC AA G T GT G C G G A G C G C C T C C T G T G
AGCC AAC ATGG AAC CCT ACT T GAG T GAC CT AAG T GGT T CA CAC G C C T CG CG GAG G AAC AC



FIG. 46B

IleGlyGlyAlaGlyAsnAsnThrLeuHisCysProThrAspCysPheArgLysHisPro
361 TCATCGGAGGGGGCAACACCCCTGCACTGCCCAACTGATTGCTTCCGCAAGGCATC
AGTAGCCTCCCCGGCCGGTGTGGACGGTGAACGGGGTGAACAAACGAAGGGCTTCGTAG

AspAlaThrTyrSerArgCysGlySerGlyProTrpIleThrProArgCysLeuValAsp
421 CGGACGCCACATACTCTCGGTGGCTCCCTGGATCACACCCAGGTGGCTGGTGGTGC
GCCTGGCGGTATGAGGCCACGCCAGGGACCTAGTGTGGTCCACGGGACCAAC

TyrProTyroLeuTrpHistYrProCysThrIleAsnTyroLeuThrIlePheLysIleArg
481 ACTACCCGTATAGGCTTGGCATTATCCTGTACCATCAACTAACATATTAAATCA
TGATGGCATATCCGAAACCGTAATTAGGAACATGGTAGTTGATGTAATAAATTTTAGT

MetTyrValGlyGlyValGluHisArgLeuGluAlaAlaCysAsnTrpThrArgGlyGlu
541 GGATGTACGTGGAGGGGTGAGCACAGGCTGGAAAGGCTGCCAAACTGGACGGGGCG
CCTACATGGCACCCCTCCCCAGCTCGTGTCCGACCTTCGACGGACGTTGACCTGGTGA

ArgCysAspLeuGluAspArgAspArgSerGluLeuSerProLeuLeuThrThrThr
601 AACGTTGGATCTGGAAGATAAGGACAGGTCCGAGCTCAGCCCCGTACTGCTGACCACTA
TTGCAACGCTAGACCTTCTATCCCTGTCAGTGGCAATGACGACTGGTGAT

GlnTrpGlnValLeuProCysSerPheThrThrLeuProAlaLeuSerThrGlyLeuIle
661 CACAGTGGCAGGTCCCTCCGTTCCTCACAAACCTGCCAGGCCCTTGTCACGGCCTCA
GTGTCACCGTCCAGGAGGGCACAGGAAGTGTGGGACGGTCCAGTGGCAATGACGACTGGTGAT



FIG. 46C

Overlap with Combined ORF of DNAs 12f through 15e-----

721 HisLeuLysGlnAsnIleValAspValGlnTyrLeuTyRGLyValGlySerSerIleAla
TCCACCTCCACCAGAACATTGTTGACCGTGGCACTACTTGTAACCTGACGTCAACATGCCAACCCAGTTCTGCTAGC

781 SerIlePheAlaLysTrpGluValValLeuLeuPheLeuIleLeuAlaAspAlaArg
CGTCCCTGGCCATTAAAGTGGGAGTACGTCGTCCTGCTCCTGCTTGCTGGAGACGGCG
GCAGGACCCGGTAATTCAACCTCATGCAGCAGGAGACAAGGAAGAACGTCTGGCG

841 ValCysSerCysLeuTrpMetMetLeuLeuIleSerGlnAlaGluAlaLeuGluAsn
GGTCTGCTCCTGGCTTGGAATGCTACTCATATCCCAAGCGGAAGGGGCTTGGAGA
CGCAGACGAGGAGCGAACACCTACTACGATGAGTATAGGGTTCGCCTTCGCCGAACCTCT

901 LeuValIleLeuAlaAlaSerLeuAlaGlyThrHisGlyLeuValSerPheLeuVal
ACCTCGTAATACTTAATGGCAGCATCCCTGGGGACGGCACGGTCTGTATCCTTCCTCG
TGGAGCATTATGAATTACGTCGTAGGGACCCGGCCCTGGCTGCCAGAACATAGGAAGGGAGC

961 PhePheCysPheAlaTrpTyRLeuLysTrpValProGlyAlaValTyrThrPhe
TGTTCCTCTGCTTGGTATCTGAAGGGTAAGTGGGTGCCGGAGGGTCTACACCT
ACAAGAACGAAACGTACCATAGACTTCCCATTACACTTCCCATTACACTTCCCATTAC



FIG. 46D

AspThrGluValAlaAlaSerCysGlyValValLeuValGlyLeuMetAlaLeuThr
 1081 TGAGACACGGAGGTGGCGCTCGTGGGGTGTGTTCTCGTGGGTGATGGCGCTAA
 ACTGTGCTCCACGGCCAGCACCCACAAAGACGCCAACTACCGCGATT

1141 LeuSerProTyrTyrLysArgTyrIleSerTrpTrpCysLeuTrpTrpLeuGlnTyrPheLeu
 CTCGTCAACCATATTACAGCGCTATATCAGCTGGTGGCTTCAGTATTTC
 GAGACAGTGGTATAATGTTCGCGATATAGTCGACCACGAACACCACCGAAGTCATAAAAG

1201 TGACCAAGAGTGGAAAGCGCAACTGACGTGGATTCCCCCTAACACGTCCGAGGGGC
ACTGGTCTCACCTTCGCGTTGACGTGCAACCTAACGGGGGAGTTGCAGGGCTCCCCCG

1261 AspAlaValLeuLeuMetCysAlaValHisProThrLeuValPheAspIleThrLys
CGGACGCTGTCACTTACTCATGTGTGCTGTACACCCGACTCTGGTATTGACATACCA
CGCTGCCACAGTACAATGAGTACAATGAGTACAATGAGTACAATGAGTACAATGAGTGT

1321 AATTGCTGGCGTCTGGACCCCTGGATTCTCAAGCCAG
LeuLeuAlaValPheGlyProLeuTrpIleLeuGlnAla
TTAACGACGGACCCGAGAACCTAAGAAGTTGGTC



FIG. 47A

1 GlyCysProGluArgLeuAlaSerCysArgProLeuThrAspPheAspGlnGlyTrpGly
 1 CAGGCTGTCTGAGAGGCTAGCCAGCTGCCGACCCCTTACCGATTTGACCAGGGCTGGG
 GTCCGACAGGACTCTCCGATCGGTCGACGGCTGGGAATGGCTAAAACGGTCCCACCC

 61 ProIleSerTyrAlaAsnGlySerGlyProAspGlnArgProTyrCysTrpHisTyrPro
 61 GCCCTATCAGTTATGCCAACGGAGCGGCCGACCGCGCCCTACTGCTGGCACTACC
 CGGGATAGTCATAACGGTTGCCCTCGCCGGGCTGGTCGCGGGATGACGACCGTGATGG

 121 ProLysProCysGlyIleValProAlaLysSerValCysGlyProValTyrCysPheThr
 121 CCCCAAAACCTTGCCTGAGGTGCTGGTCCGGTATATTGCTTCAGGGTTTGGAAACGCC
 ATAACACGGCGCTCTCACACACACCAGGCCATATAACGAAGT

 181 ProSerProValValValGlyThrThrAspArgSerGlyAlaProThrTyrSerTrpGly
 181 CTCCCAGCCCCGTGGTGGTGGGAACGACCGACAGGTGCGGCCACCTACAGCTGGG
 GAGGGTCGGGGCACCAACCACCCCTGCTGGCTGTCCAGCCCCGCGGGTGGATGTCGACCC

 241 GluAsnAspThrAspValPheValLeuAsnAsnThrArgProProLeuGlyAsnTrpPhe
 241 GTGAAAATGATACTGGACGTCTCGTCTTAACAATACCAGGCCACCGCTGGCAATTGGT
 CACTTTACTATGCCTGCAGAACAGGAATTGTTATGGTCCGGTGGCAGCCGTTAACCA

 301 GlyCysThrTrpMetAsnSerThrGlyPheThrLysValCysGlyAlaProProCysVal
 301 TCGGTTGTAACCTGGATGAACCTAACTGGATTCAACAAAGTGTGCGGAGCGCCTCCTTG
 AGCCAACATGGACCTACTTGAGTTGACCTAACAGCCTCGCGAGGAACAC

 361 IleGlyGlyAlaGlyAsnAsnThrLeuHisCysProThrAspCysPheArgLysHisPro
 361 TCATCGGAGGGGGCGGGCAACAAACACCCCTGCACTGCCCACTGATTGCTCCGCAAGCATC
 AGTAGCCTCCCCGCCGTTGTTGGGACGTGACGGGGTACTAACGAAGCGTTCTAG

 421 AspAlaThrTyrSerArgCysGlySerGlyProTrpIleThrProArgCysLeuValAsp
 421 CGGACGCCACATACTCTCGGTGCGGCTCCGGTCCCTGGATCACACCCAGGTGCCTGGTCG
 GCCTGCGGTGTATGAGAGCCACGCCAGGGCAGGGACCTAGTGTGGGTCACCGGACCA

 481 TyrProTyrArgLeuTrpHisTyrProCysThrIleAsnTyrThrIlePheLysIleArg
 481 ACTACCCGTATAGGCTTGGCATTTACCTTGATACCATCAACTACACCATATTAAATCA
 TGATGGGCATATCCGAAACCGTAATAGGAACATGGTAGTTGATGTGGTATAAAATTAGT

 541 MetTyrValGlyGlyValGluHisArgLeuGluAlaAlaCysAsnTrpThrArgGlyGlu
 541 GGATGTACGTGGGAGGGGTCGAACACAGGCTGGAAAGCTGCCGCAACTGGACGCCGGCG
 CCTACATGCACCCCTCCCCAGCTGTGTCGACCTCGACGGACGTTGACCTGCGCCCCCG

 601 ArgCysAspLeuGluAspArgAspArgSerGluLeuSerProLeuLeuLeuThrThrThr
 601 AACGTTGCGATCTGGAAAGACAGGGACAGGTCCGAGCTCAGCCCCTACTGCTGACCACTA
 TTGCAACGCTAGACCTTCTGTCCCTGTCCAGGCTCGAGTCGGGCAATGACGACTGGTGT

 661 GlnTrpGlnValLeuProCysSerPheThrThrLeuProAlaLeuSerThrGlyLeuIle
 661 CACAGTGGCAGGTCCCTCCGTGTTCTCACAAACCCCTACCAAGCCTTGCCACCGGGCTCA
 GTGTCACCGTCCAGGAGGGCACAAGGAAGTGTGGGATGGTCGGAACAGGTGGCCGGAGT

 721 HisLeuHisGlnAsnIleValAspValGlnTyrLeuTyrGlyValGlySerSerIleAla
 721 TCCACCTCCACCAAGAACATTGTGGACGTGCAAGTACTTGATACGGGTGGGGTCAAGCATCG
 AGGTGGAGGTGGCTTGTAAACACCTGCACGTCAATGCCCCACCCCAGTTCTGTAGC

 781 SerTrpAlaIleLysTrpGluTyrValValLeuLeuPheLeuLeuAlaAspAlaArg
 781 CGTCCTGGGCATTAAGTGGAGTACGTCCTCTGTTCTGCTTGAGACGCGC
 GCAGGACCCGTAATTACCCCTCATGCAGCAAGAGGACAAGGAAGACGAACGCTGCGCG

 841 ValCysSerCysLeuTrpMetMetLeuLeuIleSerGlnAlaGluAlaAlaLeuGluAsn
 841 GCGTCTGCTCTGCTGGATGATGCTACTCATATCCCAAGCGGAGGCGCTTGGAGA
 CGCAGACGAGGACGAACACCTACTACGATGAGTATAGGGTTCGCCCTCGCCGAAACCTCT

 901 LeuValIleLeuAsnAlaAlaSerLeuAlaGlyThrHisGlyLeuValSerPheLeuVal
 901 ACCTCGTAATACTTAATGCAGCATCCCTGGCCGGGACGCACGGTCTTGTATCCTCCTCG
 TGGAGCATTATGAATTACGTCGTAGGGACCAGGCCCTCGCTGCCAGAACATAGGAAGGAGC

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FIG. 38

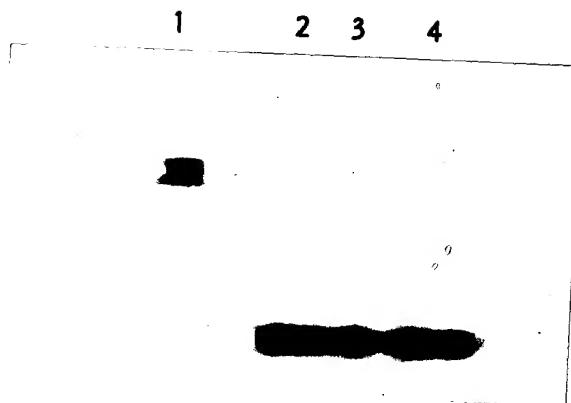
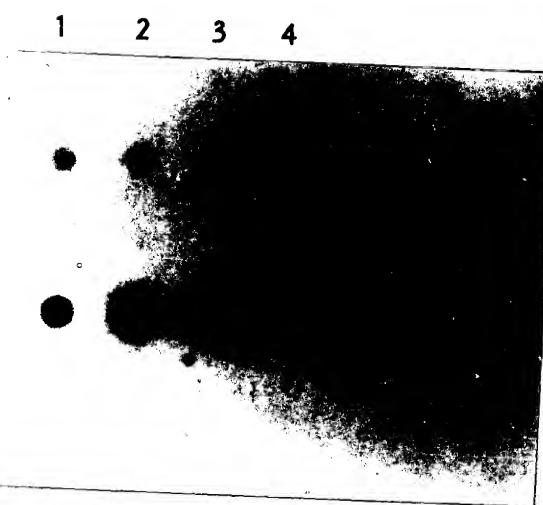
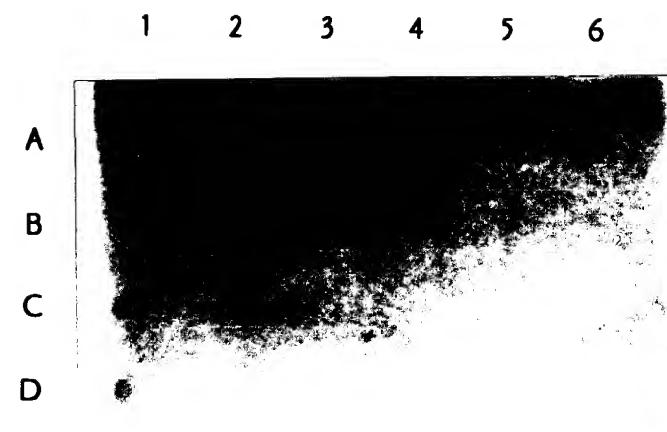


FIG. 40



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J1044 U.S. PTO

FIG. 39



J1044 U. S. PTO
01/27/03

FIG. 41A

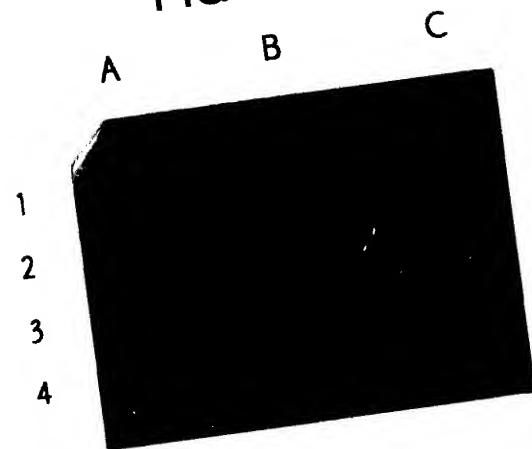
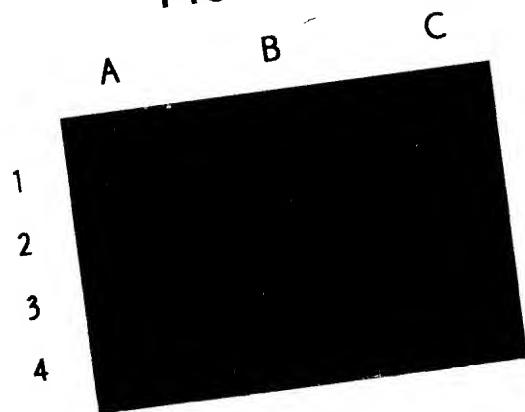


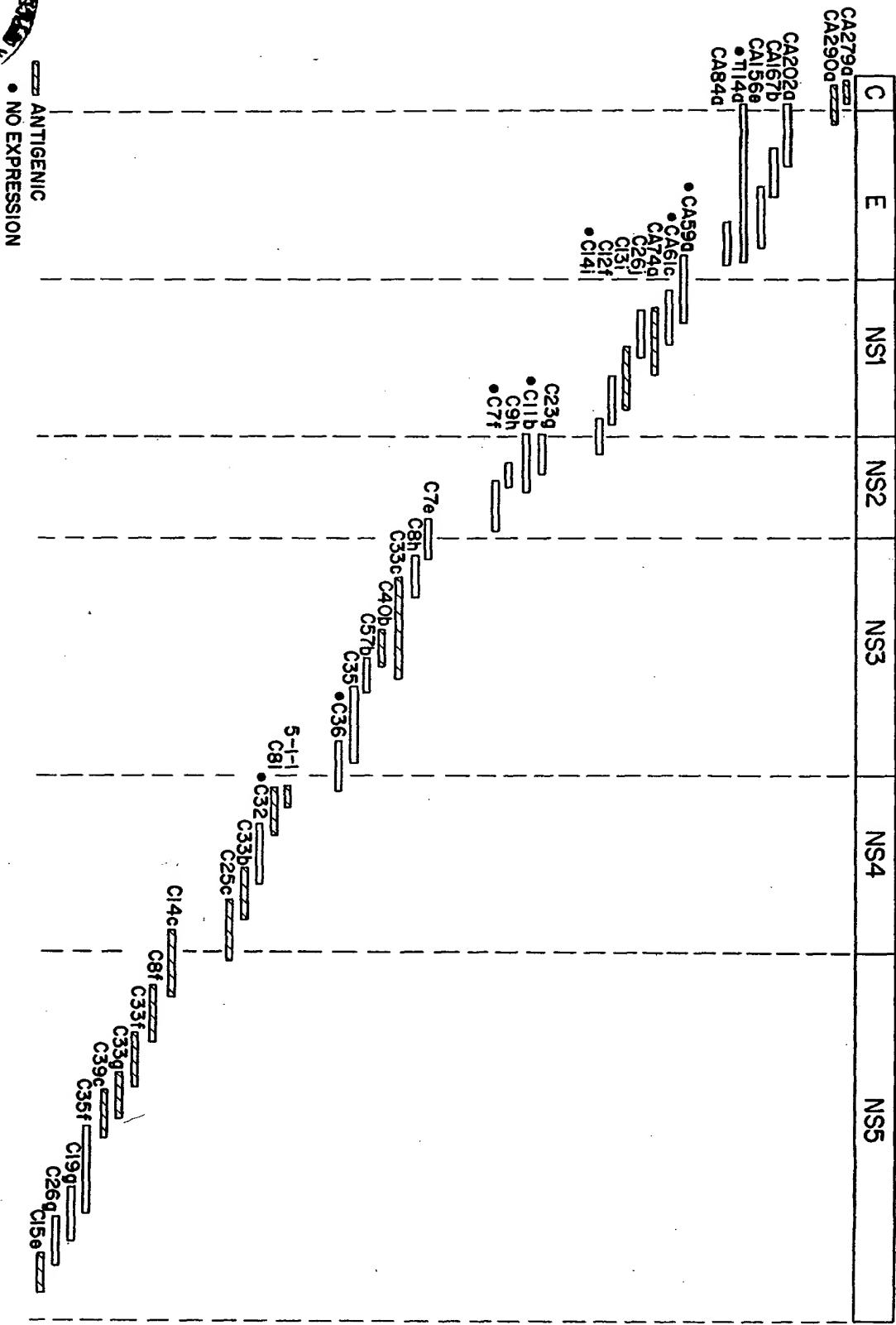
FIG. 41B



NH₂ -

FIG. 63

-COO-



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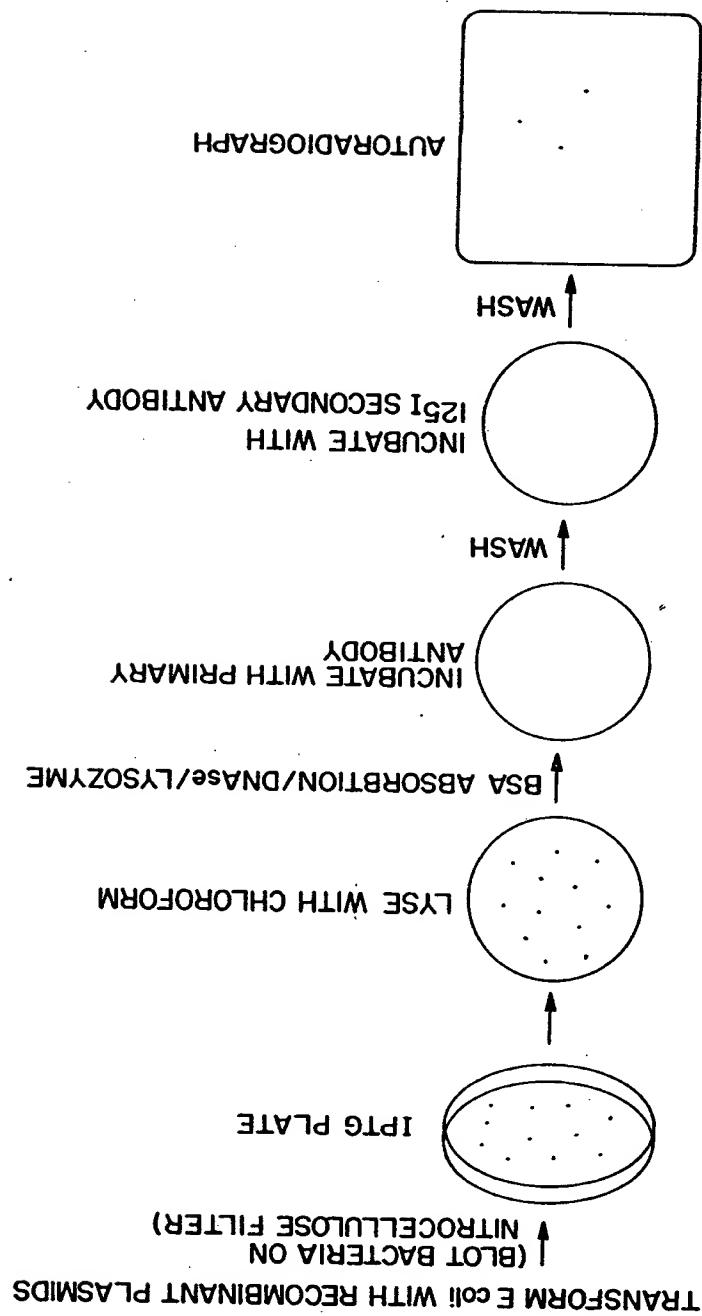


FIG. 64



	EXPRESSION LEVEL	CHIMPS			CHRONIC HCV PATIENT C100 POSITIVE								CHRONIC HCV PATIENT C100 NEGATIVE								COMMUNITY AC															
		1. POST ACUTE 2. POST ACUTE 3. C100 CONVERSION			C100 POSITIVE								C100 NEGATIVE								C100(-)															
		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6					
SOD	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
CA259a		-	-							+	+	+	+																			+				
CA290a		-	-							+	+	+	+																						+	
CA202a	N.T.	-	-							-	-	-	-																							-
CA167a	+	-	-							-	-	-	-																							
CA156C	+	-	-							-	-	-	-																							
$\pi 14a$	-	-	-							-	-	-	-																							
CA84a	\pm	-	-							-	-	-	-																							
CA59a	-	-	-							-	-	-	-																							
CA61C	-	-	-							-	-	-	-																							
CA74a	+	-	-							-	-	-	-																							
C26j	+	-	-							-	-	-	-																							
C13i	\pm	-	-							-	-	-	-																							
Cl2f	+	-	-							-	-	-	-																							
Cl4i	-	-	-							-	-	-	-																							
C23g	+	-	-							-	-	-	-																							
Cl1b	-	-	-							-	-	-	-																							
C9h	\pm	-	-							-	-	-	-																							
C7f	-	-	-							-	-	-	-																							
C7e	+	-	-							-	-	-	-																							
C8h	+	-	-							-	-	-	-																							
C33c	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+				
C40g	+	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+				
C37b	+	-	-							-	-	-	-																							
C35	\pm	-	-							-	-	-	-																							
C36	-	-	-							-	-	-	-																							
5-1	+	-	-	+	\pm	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+				
C8l	+	-	-							-	-	-	-	+																						
C32	-	-	-							-	-	-	-																							
C33b	-	-	-							-	-	-	-	+																						
C25c	+	-	-							-	-	-	-																							
Cl4c	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
C8f	+	-	-	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+				
C33f	-	-	-							-	-	-	-	+																						
C33g	+	-	-	-	-	-	-	-	-	-	-	-	-	+																						
C39c	+	-	-	-	-	-	-	-	-	-	-	-	-	+																						
C35f	N.T.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Cl9g	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
C26g	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Cl5e	\pm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				

N.T. = EXPRESSION NOT TESTED

\pm THIS POLYPEPTIDE WAS NEGATIVE IN THIS
COLONY SCREEN BUT POSITIVE BY WESTERN
BLOD ANALYSIS

FIG. 65



FIG. 66A

R T

MSTNPKPQKKNRNTNRRPQDVKFPGGGQIVGGVYLLPRRGPRLGVRATR
KTTERSQPRGRRQPJPKARRPEGRTWAQPGYPWPLYGNEGCGWAGWLLSP-100
RGSRPSWGPTDPRRRSRNLGVIDLTGFAIDLGYIPLVGAPLGGAAARA

T

LAHGVRVLEDGVNYATGNLPGCSFSIFLLALLSCLTVPASAYQVRNSTGL-200
YHTVNDCPNSSIVYEAADAILHTPGCVPCVREGNASRCWAMPTVATRD
GKLPATQLRRHIDLLVGSATLCSALYVGDCGSVFLVGQLFTSPRRHWT-300

V

TQGCNCISIYPGHI TGHRMAWDMMMNWSPTTALVMAQLL RIPQAILD MIA
AHWGVLAGIAYFSMVGNWAKVLVVL L FAGVDAETHVTGGSAGHTVSGFV-400
SLLAPGAKQNVLQINTNGSWHNLNSTALNCNDLSNTGWLAGLFYHHKFNS
GCPERLASCRPLTDFDQGWGPISYANGSGPDQRPYCWHYPPKPCGIVPAK-500
SVCVPVYCFTPSPVVVGTTDRSGAPTYSGENDTDVFVLLNNTRPPLGNWF
GCTWMNSTGFTKVCGAPPVCIGGAGNNTLHCPTDCRKHPDATYSRCGSG-600

I

PWLTPRCLV DYPYRLWHYPCTINYTIKIRMYVGGVEHRLEAACNWTRGE
RCDLEDRDRSELSPLLTTTQWQVLPCSF TLPALSTGLIHLHQNIVDVQ-700
YLYGVGSSIASWAIKWEYVLLFLLADARVCSCLWMMLLISQAEEALEN
LVLNAASLAGTHGLVSFLVFFCAWYLGKWWPGAVYTFYGMWP LLLL-800

(N)

LALPQRAYALDTEVAASC GGVVLVGLMALTLSPIYYKRYISWCLWWLQYFL
TRVEAQLHVWIPPLNVRGGRDAVILLMCAVHPTLVFDITKLLAVFGPLN-900
ILQASLLKVPYFVRVQGLLRFCALARKMIGGHYVQMVIIKLGALTGTYVY
NHLTPLRDWAHNGLRLDAVAVEFVVFSQMETKLI TWGADTAACGDIINGL-1000
PVSARRGREI L LGPADGMVSKGWRLLAPITAYAQQT RGLLGCIITSLTGR
DKNQVEGEVQIVSTAATTTATCINGVCWTVYHGAGTRTIA SPKG PVIQM-1100
YTNDQDLVGVWPAPQGSRSLT PCTCGSSDLYL VTRHADVIPVRRRGDSRG
SLLSPRPISYLGKSSGGPLLCPAGHAGVIFRAAVCTR GVAKAVDFIPVEN-1200
LETTMRSPVFTDNSSPPVVPQSFQVAHLHAPTGS GKSTKVPAA YAAQGYK

L

VLVLPNSVAATLGFGAYMSKAHGIDPNIRGVRTITGSPITYSTYKGFL-1300

ADGGCGGGAYDIIICDECHSTDATSI LGIGTVLDQAE TAGARL VV LATAT
PPGSVTVPHPNIEEVALSTTGEIPFYGKAIP LEVIKGGRHLIFCHSKKKC-1400
DELAAKLVALGINAVAYYRGLDVS VIPTSGDVVVVATDALMTGYTGDFDS

Y (S)

VIDCNTCVTQTVDFSLDPTFTIETITLPQDAV SRTQRRGRTGRGKPGIYR-1500
FVAPGERPSGMFDSSVLCECYDAGCAWYELTPAETTVRLRAYMNTPGLPV
CQDHLEFWEGVFTGLTHIDAHFLSQTQSGENLPYL VAYQATV CARAQAP-1600
PPSWDQMWKCLIRLKPTLHGPTPLL YRLGAVQNEITLTHPVTKYIMTCMS
ADLEVVTSTWVLVGGVLAALAA YCLSTGCVVIVGRVVL SGKPAIIPDREV-1700
LYREFDEMEEC SQHLPYIEQGMM LAE QFKQKALG L LQTA SRQAEVIA PAV
QTNWQKLETFWAKHMWNFISGIQYLAGLSTLPGNP AIA SLMFTA AVTSP-1800
LTTSQTLLFNLGGWVAAQLAAPGAATAFVGAGLAGAAIGS VGLGKV LID

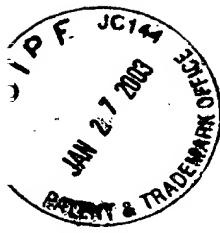


FIG. 66B

(G)
ILAGYGAGVAGALVAFKIMSGEVPSTEDLVNLLPAILSPGALVVGVVCAA-1900

(HC)
ILRRHVGPGEHAVQWMNRLIAFASRGNHVSPTHYVPESDAAARVTAISSL
LTVTQLLRRLHQWISSECTPCSGSWLRDIWDWICEVLSDFKTLKAKLM-2000

(V)
PQLPGIPFVSCQRGYKGVWRGDGIMHTRCHCGAEITGHVKNGTMRIVGPR
TCRNMWSGTFPINAYTTGPCTPLPAPNYTFALWRVSAEYVEIRQVGDFH-2100
YVTGMTTDNLKCPCQVPSPEFFTELDGVRLHRFAPPCKPLLREEVSFRVG
LHEYPVGSQLPCEPEPDVAVLTSMLTDPSHITAEAAAGRRRLARGSPPSVAS-2200
SSASQLSAPSLKATCTANHDSPDAELIEANLLWRQEMGGNI TRVESENKV
VILDSFDPLVAEEDEREISVPAEILRKSRRFAQALPVARPDPNPLVET-2300

S
WKKPDYEPPVVGCPPLPPPSSPPVPPPRKKRTVVLTESTLSTALAEATR

(FA)
SFGSSSTSGITGDNTTSSEPAKGCPDSDAESYSSMPPLEGEPGDPDL-2400
SDGSWSTVSSEANAEDVVCCSMSYSWTGALVTPCAAEEQKLPIINALSNSL
LRHHNLVYSTTSRSACQRQKKVTFDRLQVLDHYQDVLKEVKAASKVKA-2500

(F)
NLLSVEEACSLTPPHSAKSFKGYGAKDVRCHARAKAVTHINSWKDLLEDN
VTPIDTTIMAKNEVFCVQPEKGGRKPARLIVFPDLGVRVCEKMALYDVVT-2600
KLPLAVMGSSYGFQYSPGQRVEFLVQAWSKKTPMGFSYDTRCFDSTVTE

(G)
SDIRTEEAIYQCCDLDPQARVAIKSLTERLYVGGPLTNSRGENCYRRCR-2700
ASGVLTTSCGNTLCYIKARAACRAAGLQDCTMLVCGDDLVVICESAGVQ
EDAASLRAFTEAMTRYSAPPGDPPQPEYDLELITSCSSNVSAHDGAGKR-2800
VYYLTRDPTTPLARAARWETARHTFVNSWLGNIIMFAPTLWARMILMTHFF
SVLIARDQLEQALDCEIYGACYSIEPLDLPPIIQRHLGSAFSLHSYSPG-2900

G
EINRVAACLRKLGVPLRAWRHRARSVRARLLARGGRAAICGKYLFNWAV
RTKLK----- (Stop codon not yet reached)

() = Heterogeneity due to possible 5' or 3'
terminal cloning artefacts.

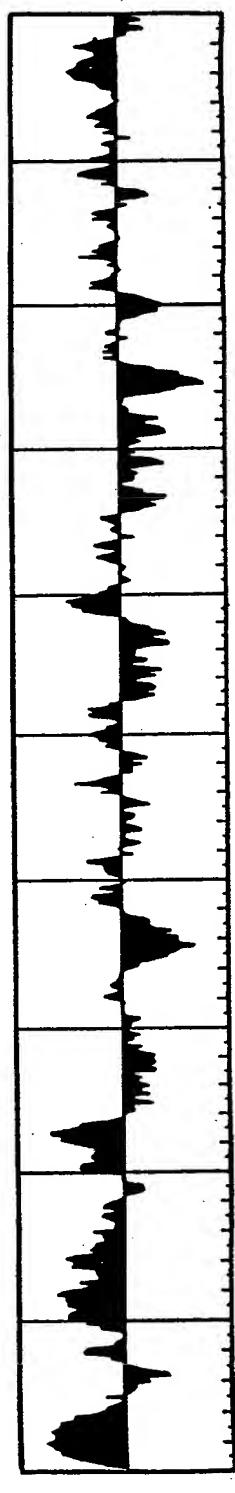
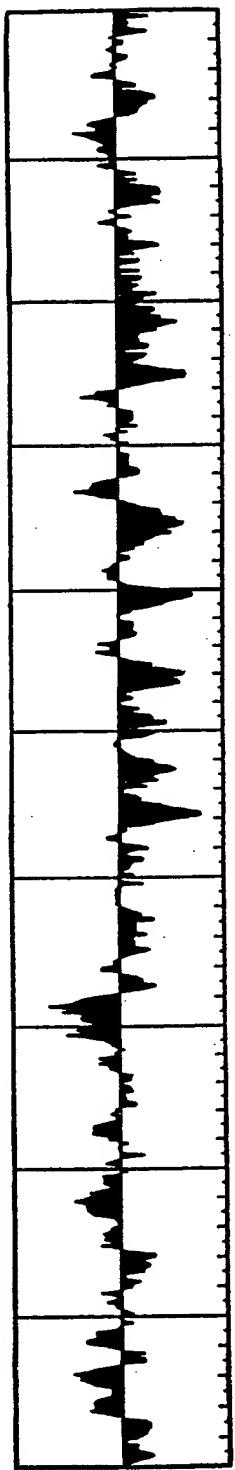
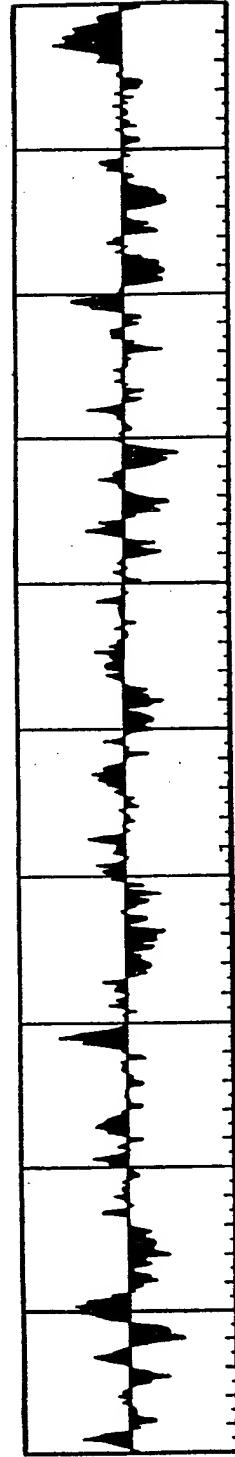


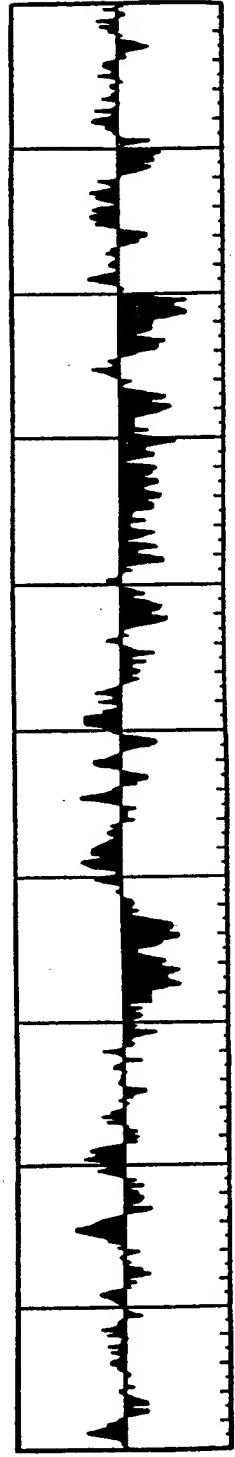
FIG. 67A



(501-1000)



(1001-1500)



(1501-2000) HCV

FIG. 67B



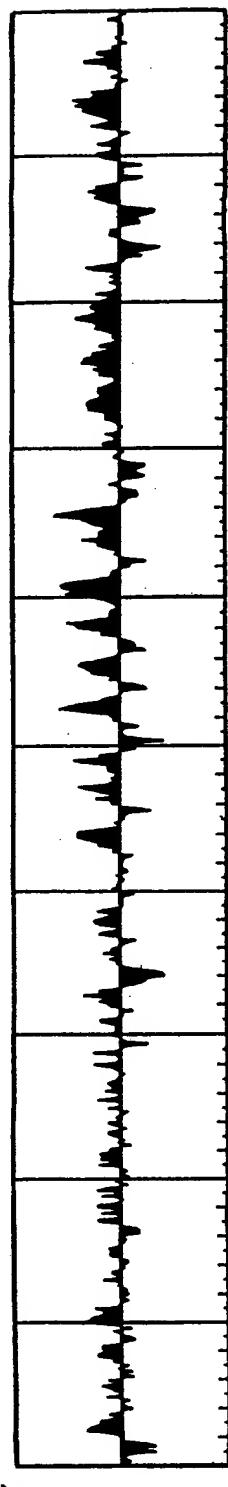
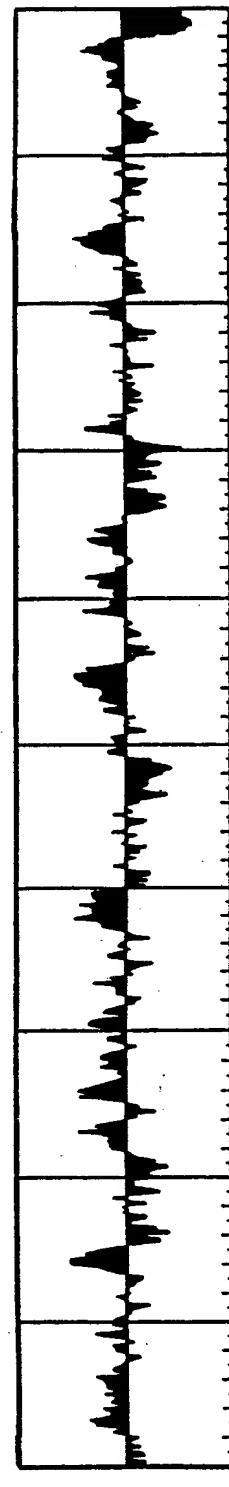


FIG. 67C



(2501-3000)

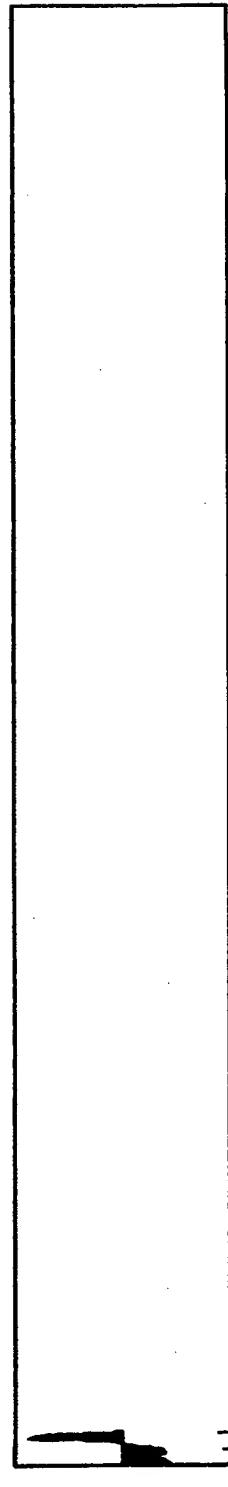
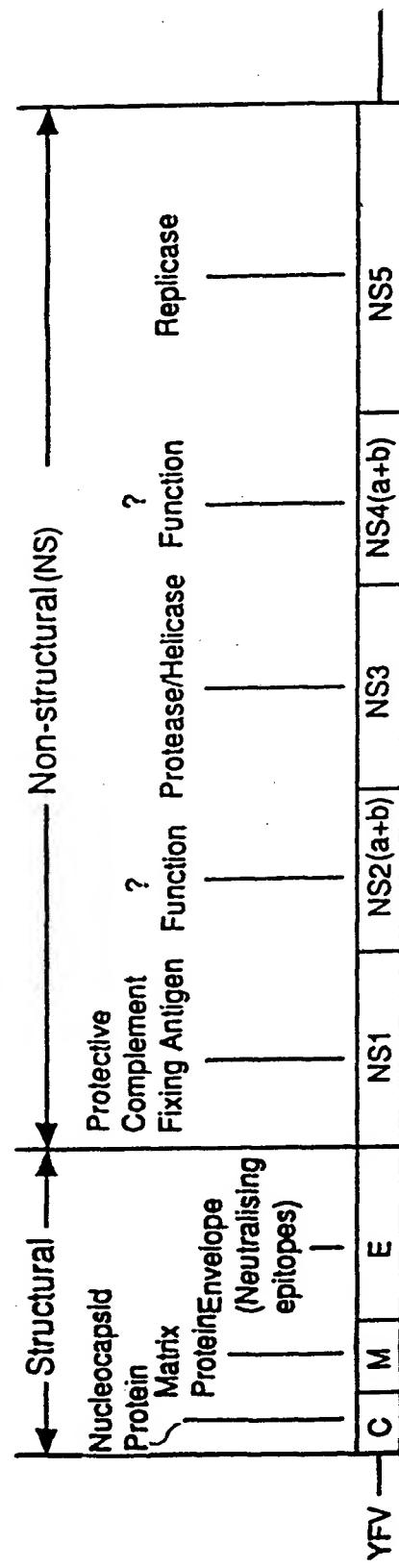


FIG. 67D

(3001-3011) HCV





5-1-1

FIG. 69





FIG. 68

	NS3 region	NS5 Highly-conserved Polymerase region
Flaviviruses (Yellow Fever, West Nile, Dengue)	TATPPG-----SAAQRRGRIGRNP-----GDDCVV ***** * * ***	
HCV	TATPPG-----SRTQRRGRTGRGK-----GDDLVV #1348 #1483 #2737	

FIG. 73

5' CGGGGCAGGGGGCAGTGCAGTGGATGAACCGGCTGATAGCCTCGCCTCCGGGGGAAC
 CGCTCCCCCGTCACGTACCTACTTGGCCGACTATCGGAAGCGGAGGGCCCCCTTG 3'
 3' 5'

 5' CATGTTTCCCCCTAATGAG 3'
 GTACAAAGGGGGATTACTCAGC 3' 5'



FIG. 70

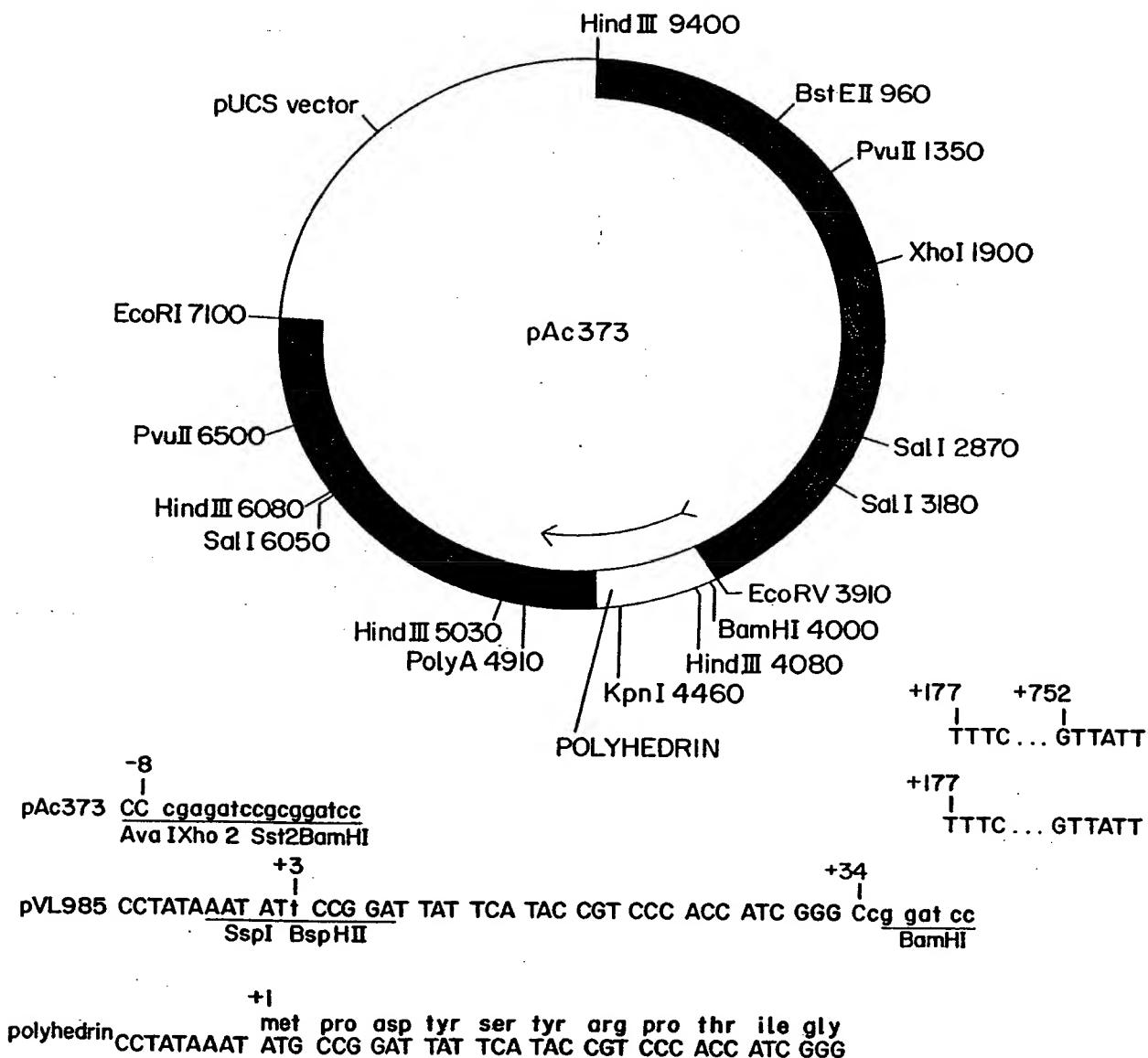




FIG. 71

1 -Overlap with 16jh-----
GlyArgAlaAlaIleCysGlyLysTyrLeuPheAsnTrpAlaValArgThrLysLeuLys
GGCAGGGCTGCCATATCTGGCAACTGGCTTCAAACTGGCCAGTAAGAACAAAGCTCAA
CCGTCCCCACGGTATACCCGTTCATGGAGAAGTTGACCCGTCAATTGTTCCAGTT
-
121 LeuThrProIleAlaAlaIleCysGlnLeuAspLeuSerGlyTrpPheThrAlaGlyTyr
CTCACTCCAATAGCGGCCGGCTGGCCAGCTGGACTTGTCCGGCTGGTTCACGGCTGGCTAC
GAGTGAGGTATGCCGGCGACGGTCACTGAACAGGCCGACCAAGTGCCGACCGATG
SerGlyAspIleTyrHisSerValSerHisAlaArgProArgTrpIleTrpPheCys
121 AGGGGGGAGACATTATCACAGCGTGTCTCATGCCGGCCCCCTGGATCTGGTTTG
TCCCCCTCTGTTAAATAGTGTGCCACAGTACGGGGGGGACCTAGACCAAAAC
181 CC
GG

FIG. 72A

MetSerThrAsnProLysProGlnArgLysThrAsnArgArgProGln
1 ATGAGCACGAATCCTAAACCTCAAAAAAAACGTAACACCAACCGTACGCCACAG
TACTCGTGCTTAGGATTGGAGTTTTGGATTGGAGTTTTGGATTGGAGTTTTGGATTGGAGTT
AspValLysPheProGlyGlyGlyGlnIleValGlyValTyrLeuProArgArg
61 GACGTCAGTTCCCCGGGTCAGATCGTTCGGAGTTACTTGTGTTGGAGCTAGCAACCACCTCAAAATGAA
CTGCAGTTCAAGGGCCACCGCCAGTCAACCTCAAATGAAACAAAC

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FIG. 72B

GlyProArgLeuGlyValArgAlaThrArgLysThrSerGluArgSerGlnProArgGly
121 GCCCTAGATTGGGTGTGGCGCGACGAGAAAGACTTCCGAGCGCTCGCAAACCTCGAGGT
 CGGGGATCTAACCCACACGGCGCTGCTCTGAAGGCTCGCCAGCGTGGAGCTCCA

ArgArgGlnProIleProLeuProArgAlaArgArgProGluGlyArgThrTrpAlaGlnProGly
181 AGACGTCAGCCTATCCCCAAGGCTCGTGGCCCAGGGCAGGACCTGGGCTCAGCCCCGG
 TCTGCCAGTCGGATAGGGTTCCGAGCCGGGGCTCCGAGCCGGGGCTCCGAGCTGGGGCC

TyrProTrpProLeuTyrglyAsnGluGlyCysGlyTrpAlaGlyTrpLeuSerPro
241 TACCCCTGGCCCTCTATGGCAATGAGGGCTGCGGGTGGGGATGGCTCCTGTCCTCCC
 ATGGGAACCGGGAGATACCGTTACTCCGACGCCCCACCGCCCTACCGAGGACAGAGGG

ArgGlySerArgProSerTrpGlyProThrAspProArgArgSerArgAsnLeuGly
301 CGTGGCTCTGGCCTAGCTGGGGCCCCACAGACCCCCGGGTCTGGGGCCATCCAGCGCTTAACCCA
 GCACCGAGAGCCGGATCGACCCGGGATCGACGGAAATGCACGCCAGGGCTGGAGTACCCCATGTTATGGCGAGCAG

LysValIleAspThrLeuThrCysGlyPheAlaAspLeuMetGlyTyrIleProLeuVal
361 AAGGTCAATCGATAACCTTACGTTGGGGCTTCGCCGACCTCATGGGTACATACCGCTCGTC
 TTCAGTAGCTATGGAAATGCCAGGGCTGGAGTACCCCATGTTATGGCGAGCAG

GlyAlaProLeuGlyGlyAlaAlaArgAlaLeuAlaHisGlyValArgValLeuGluAsp
421 GGCCTCCCTCTGGAGGGCTGCCAGGGCCCTGGCGCATGGGTGGGGTTCTGGAAAGAC
 CGGGGGAGAACCTCCGGAGCCGGTCCGGACCGGTGGACGGCCGTACCGCAGGGCAAGACCTCTG



FIG. 72C

GlyValAsnTyrAlaThrGlyAsnLeuProGlyCysSerPheSerIlePheLeuLeuAla
481 GGGCTGAACTATGCCAACAGGGAAACCTTCTGGTTGCTCTTCTCTATCTTCCCTTCTGGCC
CCGCACTTGATATACGTTGTCCTTGGAAAGGACCAACGAGAAAGAGATAAGGAAGACCGG

LeuLeuSerCysLeuThrValProAlaSerAlaTyrGlnValArgAsnSerThrGlyLeu
541 CTGCTCTTGCTTGACTGTGCCCTTGGCTTACCAAGTGGCAACTCCACGGGCTT
GACGAGAGAACGAACTGACACGGGGAGACCCGGATGGTTACGGCGTTGAGGTGCCCGAA

TyrHisValThrAsnAspCysProAsnSerSerIleValTyrGluAlaAlaAspAlaIle
601 TACCAACGTCACCAATGATTGCCCTAACTCGAGTATTGTTACGAGGATTGAGCTCATAAACATGGCTCCGGGCTACGGTAG
ATGGTGCAGTGGTTACTAACGGGATTGAGCTCATAAACATGGCTCCGGGCTACGGTAG

LeuHisThrProGlyCysValProCysValArgGluGlyAsnAlaSerArgCysTrpVal
661 CTGGCACACTCCGGGTGGCTCCCTTGCGTTGCGTGAAGGCCAACGGCCTCGAGGTGTTGGCTG
GACGTTGAGGCCAACGGCAAGCAAGCAACTCCCGTAGCGAGCTCCACACCCAC

AlaMetThrProThrValAlaThrArgAspGlyLysLeuProAlaThrGlnLeuArgArg
721 GCGATGACCCCTACGGGGGCCACAGGGATGGCAAACCTCCCCGGACGCAGCTTGACGT
CGCTACTGGGATGCCAACGGTTGGTCCCTACCGTTGAGGGGCTGCGTCAAGCTGCA

HisIleAspLeuLeuValGlySerAlaThrLeuCysSerAlaLeuTyValGlyAspLeu
781 CACATCGATCTGCTTGCTGGAGGGCCACCCCTCTGTTGGCCCTCTACGTGGGGACCTG
GTGTAGCTAGACGAAACAGCCCTCGGGTTGGAGACAAGGGGAGATGCACCCCTGGAC

CysGlySerValPheLeuValGlyGlnLeuPheThrPheSerProArgArgHisTrpThr
841 TGCGGGTCTGCTTCTGCTGGCCAACTGTTCACCTCTCCAGGGCCACTGGACG
ACGCCAGACAGAACAGGGGTTGACAAGTGGAAAGAGGGTGGGAGATGCACCCCTGGAC

FIG. 72D

901 ThrglnGlycysAsnCysSerileTyrProGlyHisileThrGlyHisArgMetAlaIleTrp
ACGCAAGGTTGCAATTGCTCTATCCGGCCATATAACGGTCACCGCATGGCATGG
TGGGTCCAACGTTAACGAGATAAGATGGGGGTATATTGCCAGTGGGTACCGTACCC

961 AspMetMetAsnTrpSerProThrThrAlaIleLeuValMetAlaGlnIleLeuArgIle
GATAATGATGATGAACTGGTCCCCCTACGACGGCGTGGTAATGGCTCAGCTGCTCCGGATC
CTATACTACTACTTGACCAAGGGATGCTGCCGCAACCATTACCGAGTCAGCAGGGCTAG

1021 ProGlnAlaIleLeuAspMetIleAlaGlyAlaHisTrpGlyValLeuAlaGlyIleAla
CCACAAGCCATCTTGGACATGATCGCTGGTGCCTCACTGGGGAGTCTGACTGGGACCCCT
GGTGTTCGGTAGAACCTGTACTAGCGGACCAACGAGTCAGCAGGACCCCTCAGGACCGGGTATCGC

1081 TyrPheSerMetValGlyAsnTrpAlaLysValLeuValLeuLeuPheAlaGly
TATTCTCCATGGTGGGAACCTGGGGAAAGGTCTGGTAGTGGCTCTGCTATTGGCTATTTGGC
ATAAAGAGGTACCCCTTGACCCGTTCCAGGACCATCACGACGACGATAAACGGGGCG

1141 ValAspAlaGluThrHisValThrGlySerAlaGlyHisThrValSerGlyPheVal
GTCCGACGGGGAAACCCACGTACCGTCACTGGGGAAAGTGGGGCCACACTGTTGCTGTTGTTGTT
CAGCTGGCCCTTGGGTGCACTGGGGCTTCAACGGCCGGTGTGACACAGACCTAAACAA

1201 SerLeuAlaProGlyAlaLysGlnAsnValGlnIleLeuAsnThrAsnGlySerTrp
AGCCTCCTCGACCGGGCCAAAGCAGCTCCAGCTGATCAACACCCAAACGGCAAGTTGG
TCGGAGGAGGGTGGTCCGGGTTCGTCTGCAAGGTGACTAGTTGTGGTTGCCGTCAAC



FIG. 72E

HisLeuAsnSerThrAlaLeuAsnCysAsnAspSerLeuAsnThrGlyTrpLeuAlaGly
1261 CACCTCAATAGCACGGCCCTGAACTGCAAATGATAAGCCTAACACGGCTGGCAGGG
GTGGAGTTATCGTGGGGACTTGACGTTACTATCGGAGTTGTTGGCCGACCAACCGTCCC

LeuPheTyrHisHisLysPheAsnSerSerGlyCysProGluArgLeuAlaSerCysAsn
1321 CTTTCTATCACCAAGTTCAACTCTAGGCTGTCCCTGAGAGGCTAGGCCAGCTGCCGA
GAAAAGATAGTGGTGTCAAGTTGAGAAGTCCCACAGGACTCTCCGATCGGTCGACGGCT

ProLeuThrAspPheAspGlnGlyTrpGlyProIleSerTyraAlaAsnGlySerGlyPro
1381 CCCCTTACCGATTGGACCGGGCTGGGGCCCTATCAGTTATGCCAACGGAAGGGGGGG
GGGGAAATGGCTAAACTGGTCCCACCCGGGATAGTCAAATACGGTTGCCCTGGGGGG

AspGlnArgProTyrcysTrpHisTyrcysTrpProProLysProCysGlyIleIvalProAlaLys
1441 GACCAGGGCCCTACTGGCAACTACCCCCAAACCTTGCGGTATTGTCGCCCGCGAAAG
CTGGTCGGGGATGACGACCCGTGATGGGGTTTGGAACGCCATAAACACGGGCCTTC

SerValCysGlyProValTyrcysPheThrProSerProValValValGlyThrThrAsp
1501 AGTGTGTGGTCCGGTATATGCTTCACTCCAGGCCCGTGGTGGAAACGCCACCCCTGCTGGCTG
TCACACACAGGCCATAACGAAGTGAGGGTGGGGCACCACCCCTGCTGGCTG

ArgSerGlyAlaProThrTyrSerTrpGlyGluAsnAspThrAspValPheValLeuAsn
1561 AGGTGGCGGCCACCTACAGCTGGGTGAAATGATAACGGACGTCTCGTCCTAAC
TCCAGCCCCGGGGTGGATGTCGACCCCACTTTACTATGCCCTGAGGAAGCAGGAATTG



FIG.72F

AsnThrArgProProLeuGlyAsnTrpPheGlyCysthrTrpMetAsnSerThrGlyPhe
1621 AATACCAGGCCACCGCTGGCAATTGGTTGGATACCTGGATGAACCTAACTGGATT
TTATGGTCCGGTGGCACCCGTTAACCAAGCCAAACATGGACCTACTTGAGTGACCTAAG

ThrLysValCysGlyAlaProProCysValIleGlyAlaGlyAsnAsnThrLeuHis
1681 ACCAAAGTGTGGGGAGCGCCCTCGCTGTCATGGAGGGGGGGCAACAAACCCCTGGCAC
TGGTTTCACACGCCCTCGCGAGGAACACAGTAGCTCCTCCCCGGCTGTGGAGCGTG

CysProThrAspCysPheArgGlyShisProAspAlaThrTyrSerArgCysGlySerGly
1741 TGCCCCACTGATTGCTTCCGGCAAGCATCCGGACGCCACACATACTCGGTGGGGTCCGGT
ACGGGGTGAACTAACGAAGGGGTTCGTAGGCTGGGTATGAGGCCACGCCAGGGCCA

ProTrpLeuThrProArgCysSleValAspTyrProTyrArgLeuTrpHisTyrProCys
1801 CCCTGGATCACACCCAGGTGGCTGGTCACTACCCGTATAGGCTTGGCATTATCCTTGT
GGGACCTAGTGTGGTCCACGGACCAGCCTGATGGCATATCCGAAACCGTAATAGGAACA

ThrIleAsnTyrThrIlePhenylsileArgMetTyrValGlyGlyValGluHisArgLeu
1861 ACCATCAACTACACCATATTAAATCAGGATGTACGTGGAGGGGTCCAAACACAGGCTG
TGGTAGTTGATGTGGTATAAATTAGTCCTACATGCACCCCTCCAGCTTGTGTCGGAC

GluAlaAlaCysAsnTrpThrArgGlyGluArgCysAspLeuGluAspArgSer
1921 GAAGCTGGCTGGCAACTGGACGCGGGGGGAACGTTGGGATCTGGAAAGACAGGGACAGGTCC
CTTCCACGGACGTTGACCTGGCCCCGGCTTGCAACGCTAGACCTTCTGTCCCTGTCCAGG

GluLeuSerProLeuLeuThrThrArgGlyGluArgCysSerProCysSerPheThr
1981 GAGCTCAGCCCCGTTACTGCTGACCACTACACAGTGGCAGGTCCCTGGTCCCTCACAA
CTCGAGTCGGCAATGACGACTGGTGAATGTTGTCACCGTCCAGGAGGGACAAGGAAGTGT



FIG. 72G

ThrLeuProAlaLeuSerThrGlyLeuIleHisLeuHisGlnAsnIleValAspValGln
2041 ACCCTAACCGGCTTGTCCACCGGCCCTCATCCACCTCCACCAACATTGGACGGTGCAG
 TGGGATGGTGGTGGAAACAGGTGGCCGGAGTAGGTGGAGCTGTTAACACCTGGCACGTC

TyrLeuTyrGlyValGlySerSerIleAlaSerTrpAlaIleLysTrpGlutYrValVal
2101 TACTTGTACGGGGTGGGTCAAGGCATCCGGTCTGGCCATTAAAGTGGGAGTACGGTCGT
 ATGAAACATGGCCCCACCCCAACGGTACGGCAGGACCCGTAATTCACCCCTCATGGCAGCAA

LeuLeuPheLeuLeuAlaAspAlaArgValCysSerCysLeuTrpMetMetLeuLeu
2161 CTCCTGTTCCCTCTGGCTTGCAGACGGCGCGCTCTGGATGCTCTGGATGCTACTC
 GAGGACAAGGAAGACGAACGTTGCGCCAGACGAGGACGAGCACACCTACTACGATGAG

IleSerGlnAlaGluAlaAlaLeuGluAsnLeuValIleLeuAsnAlaSerLeuAla
2221 ATATCCAAGGGAGGGGGCTTGGAGAACCTCGTAATACTTAATGAGCATCCCTGGCC
 TATAGGGTTGCCCTCCGCCGAAACCTCTGGAGCATTATGAATTACGTCGTAGGGACCCGG

GlyThrHisGlyLeuValSerPhePheCysPheAlaTrpTyrLeuLysGly
2281 GGGACCCACGGTCTTGTATCCCTCCTGGTTGCATGGTATTGAAAGGGT
 CCCTGCGTGCCAGAACATAGGAAGGACACAAGAACGAAACGTACCTAAACTTCCCA

LysTrpValProGlyAlaValTyrThrPheTyrGlyMetTrpProLeuLeuLeu
2341 AAGTGGGTGCCGGAGGGTCTACACCTTCTACGGGATGTTGGCTCCTCCGCTCCTG
 TTCACCCACGGGCCCTGCCAGATGTGGAAGATGCCAGACCGGAGGGACGAGGAC



FIG. 72H



LewAlaLeuProGlnArgAlaLeuAspThrGluValAlaAlaSerCysGlyGly
2401 TTGGCGTTGCCGCCAGGGGGGTACGGCGTGGACACGGAGGTGGCGCTCGTGTGGGGT
AACCGCAACGGGGTCCCCGATGCCGCACCTGTGCCTCCACGGGCAGCACCGCCA

ValValLeuValGlyLeuMetAlaLeuThrLeuSerProTyrrLysArgTyrrIleSer
2461 GTTGTCTCGTCTGGGTGATGGCGCTGACTCTGTCACCATATTACAAGGCTATATCAGC
CAACAAGAGGCCAACTACCGCGACTGAGACAGTGGTATAATGTCGGATATAAGTCCG

TrpCysLeuTrpTrpIleGlnTyrPheLeuThrArgValGluAlaGlnIleuHi svalTrp
2521 TGGTGGCTTGTTGGCTTCAGTTCTGACCAAGGTGGAAGGCCAAACTGCACGTGTGG
ACCACGAAACACCACCGAAGTCATAAAAGACTGGTCTCACCTTCGGTTGACGTCACACC

IleProProLeuAsnValArgGlyArgAspAlaValIleLeuMetCysAlaVal
2581 ATTCCCCCCTCAACGTCGGAGGGGGGGCGACGCCGTCATCTCTACTCATGTTGCTGTA
TAAGGGGGAGTTGAGGCTCCCCCGCCTGGGGCAGTAGATAATGAGTACACGACAT

HisProThrLeuValPheAspIleThrLysLeuLeuAlaValPheGlyProLeuTrp
2641 CACCCGACTCTGGTATTTGACATCACCATAATTGCTGGCCGTTGGACCCCTTGG
GTGGGCTGAGACCATAAACTGTAGTGGTTAACGACGACGGCAGAAAGCCTGGGAAACC

IleLeuGlnAlaSerLeuLeuLysValProTyrrPheValArgValGlnGlyIleuLeuArg
2701 ATTCTCAAGCCAGTTGCTAAAGTACCCCTACTTTGTGCGCGTCCAAGGGCTTCTCCGG
TAAGAAAGTGGTCAAACGAATTCAATGGGATGAAACACGGCAGGTTCCGGAAAGGGCC

FIG. 721



PheCysAlaLeuAlaArgLysMetIleGlyHistYrValGlnMetValIleIleLys
2761 TTCTGGCGCTTAGCGGGAAAGATGATCGGGCCATTACGTGCAAATGGTCATCATTAG
AAGACGCCAATCGGCCCTCTACTAGCCTCCGTAATGCCACGTTACCAAGTAGTAATTG

LeuGlyAlaLeuThrGlyThrTyrvAlTyraShisLeuThrProLeuArgAspIlePala
2821 TTAGGGGGCCTTAACCTGCACCTATGTTATAACCATCTCACTCCTCTGGACTGGGG
AATCCCCGGAAATGACCGTGGATAACAAATGGTAGAGTGAGGAGAAGCCCTGACCCGC

HisAsnGlyLeuArgAspLeuAlaValAlaValGluProValValPheSerGlnMetGlu
2881 CACAACGGCTTGCAGAGATCTGGCCGTGGCTGTAGAGCCAGTCGTCTTCCCAAATGGAG
GTGTTGGCGAACGGCTTAGACCCGGCACCCGACATCTCGGTCAAGCAGAAGAGGGTTACCTC

ThrLysLeuIleThrTrpGlyAlaAspThrAlaAlaCysGlyAspIleAsnGlyLeu
2941 ACCAAGGCTCATCACGTGGGGCAGATAACCGCCGGCTGGGTGACATCATCAACGGCTTG
TGGTTCGAGTAGTGCACCCCCCGTCTATGGCGGGCACGCCACGACACTGTAGTTGCCGAAC

ProValSerAlaArgArgGlyArgGluIleLeuLeuGlyProAlaAspGlyMetValSer
3001 CCTGTTCCGGCCGGAGATACTGCTCGGGCCAGCGATGGAATGGTCTCC
GGACAAAGGGGGCGTCCCCGGCCCTATGACCGAGCCCCGGTCCGCTACCTTACCCAGAGG

LysGlyTrpArgLeuAlaProIleThrAlaTyraLaglnGlnThrArgGlyLeuLeu
3061 AAGGGGGAGGTGCTGGCGCCATCACGGCGTACGGCCAGCACAGGGGCTCTCTA
TTCCCCACCTCCAACGACGGGGTAGTGCCGATGGGGCTGTCCTGTTCCCCGAGGAT

GlyCysIleIleThrSerLeuThrGlyArgAspLysAsnGlnValGluGlyGluValGln
3121 GGGTGCATAATCACGACCTAACTGGCCGAGCAAAACCAAGTGGAGGGTGAAGTCCAG
CCCACGTTAGTGGTGGGATGACCCGGCCCTGTTGGTTACCTCCCACTCCAGGTC



FIG. 72J



FIG. 72K

LeuGluThrThrMetArgSerProValPheThrAspAsnSerProProValValPro
3601 CTAGAGACAACCATGAGGTCCCCGGTGTACGGATAACTCCTCCACAGTAGTGCCC
GATCTCTGTTGGTACTCCAGGGCCACAAAGTGCCTATTGAGGAGGGTGTCAACGGG
GlnSerPheGlnValAlaHisLeuHisAlaProThrGlySerGlyLysSerThrLysVal
3661 CAGAGCTTCCAGGTGGCTCACCTCCATGCTCCACAGGCAGCGGCAAAAGCACCAAGGTC
GTCTCGAAGGGTCCACCGCAGTGGAGGTACCGAGGGTGTCCGCTGCCGTTTCTGTGGTTCCAG
ProAlaAlaAlaAlaGlnGlyTyrLysValLeuAsnProSerValAlaAla
3721 CCGGCTGCAATATGCCAGCTCAGGGCTATAAGGTGCTAGTACTCAACCCCTCTGTGCTGCA
GGCCGACGTATACTGTCGAGTCCCGATATTCCACGATCATGAGTTGGGAGACAACGACGT
ThrLeuGlyPheGlyAlaAlaTyrMetSerLysAlaHisGlyIleAspProAsnIleArgThr
3781 ACACTGGCTTGGTGTACATGTCAGGCTCATGGGATCGATCCTAACATCAGGACC
TGTGACCCGAAACCACGAATGTACAGGTCCGAGTAGCTAGGATGTAGTCCTGG
GlyValArgThrIleThrThrGlySerProIleThrTyrSerThrTyrGlyLysPheLeu
3841 GGGGTGAGAACAAATTACCAACTGGCAGCCCCATCACGTACTCCACCTACGGCAAGTTCCCT
CCCCACTCTTGTAAATGGTGAACCGTGGGTAGTGCATGAGGTGGATGCCGTCAAGGAA
AlaAspGlyGlyCysSerGlyGlyAlaIleAspIleIleCysAspGluCysHisSer
3901 GCGGACGGGGTGGCTGGGGGGCTATGACATAATAATTGTGACGAGTGGCCACTCC
CGGCTGGGGCCCCACGAGCCCCCAGGCTTACACTGATTATAAACACTGCTCACGGTGAAG



FIG. 72L

ThrAspAlaThrSerIleLeuGlyIleGlyThrValLeuAspGlnAlaGluThrAlaGly
ACGGATGCCACATCCATCTGGCATCGGCACACTGGCTTGACCAAGCAGAGACTGGGGG
TGCCTACGGTGTAGGTAGAACCCGTAGCCGTACAGGAACCTGGTCTGACGCC

AlaArgLeuValValLeuAlaThrAlaThrProProGlySerValThrValProHisPro
GGGAGACTGGTTGTGCTGCCACCGCACCCCTCCGGCTCCGTCACTGTGCCCATCCC
CGCTCTGACCAACACGAGGGTGGGGAGGCCGAGGCAGTGACACGGGTAGGG

AsnIleGluGluValAlaLeuSerThrThrGlyGluIleProPheTyrglyLysAlaIle
AACATCGGGAGGTTGCTCTGTCCACCAACGGAGAGATCCCTTACGGCAAGGCTATC
TTGTAGCTCCAAACGAGACAGGTGGCCTCTAGGGAAAAATGCCGTTCCGATAG

ProLeuGluValIleLysGlyArgHisLeuIlePheCysHisSerIleLysLysCYS
CCCCTCGAAGTAATCAAGGGGGAGACATCTCATCTGTCTTCAAGAAGAAGTGC
GGGGAGGCTTCATTAGTCCCCCCTCTGTAGAGTAGAAAGACAGTAAGTTCTTCACG

AspGluAlaAlaAlaLysLeuValAlaLeuGlyIleAsnAlaValAlaThrArgGly
GACGAACTCGCCGCCAAAGCTGGCATTTGGCATCAATGGCTTACTACCGGGT
CTGCTTGAGGGCGTTTCGACCGGTAACCCGTAGTACGGCACCGGATGCGCCA

LeuAspValSerValIleProThrSerGlyAspValValValAlaThrAspAlaLeu
CTTGACGTGTCGGTCAATCCGACCAAGGGGAGTTGTCGTGGCAACCGATGCCCTC
GAACGGCACAGGCAGTAGGGCTGGTGGCTACAAACAGCAGCACCGGTTGGCTACGGGAG

3961 4021 4081 4141 4201 4261



FIG. 47B

PhePheCysPheAlaTrpTyrLeuLysGlyLysTrpValProGlyAlaValTyrThrPhe
 961 TGTCTCTGCTTGATGGTATTGAAGGGTAAGTGGGTGCCGGAGCGGTCTACACCT
 ACAAGAACGAAACGTACCATAACTCCCATTACCCACGGGCTCGCCAGATGTGGA

 TyrGlyMetTrpProLeuLeuLeuLeuLeuAlaLeuProGlnArgAlaTyrAlaLeu
 1021 TCTACGGGATGTGGCTCTCCTCCTGCTCTGTTGGCGTTGCCAGCGGGCGTACGCGC
 AGATGCCCTACACCGGAGAGGAGCAGGACAACCGCAACGGGTCGCCGATGCGCG

 AspThrGluValAlaAlaSerCysGlyGlyValValLeuValGlyLeuMetAlaLeuThr
 1081 TGGACACGGAGGTGGCCGCGTGTGGCGGTGTTCTCGTCGGTTGATGGCGCTGA
 ACCTGTGCCTCCACCGGCGCAGCACACCGCCACAACAAGAGCAGCCAACCGCGACT

 LeuSerProTyrTyrLysArgTyrIleSerTrpCysLeuTrpTrpLeuGlnTyrPheLeu
 1141 CTCGTCAACCATATTACAAGCGCTATATCAGCTGGTGTGGTGGCTTCAGTATTT
 GAGACAGTGGTATAATGTCGATATAGTCGACCAACACCAGAAGTCATAAAAG

 ThrArgValGluAlaGlnLeuHisValTrpIleProLeuAsnValArgGlyGlyArg
 1201 TGACCAAGAGTGGAAAGCGCAACTGCACTGTTGGATTCCCCCTCAACGTCCGAGGGGGGC
 ACTGGTCTCACCTCGCGTTGACGTGACACCTAACGGGGGAGTTGCAGGCTCCCCCG

 AspAlaValIleLeuLeuMetCysAlaValHisProThrLeuValPheAspIleThrLys
 1261 GCGACGCCGTACCTTACTCATGTGTGCTGTACACCCGACTCTGGTATTGACATCACCA
 CGCTGCGGAGTAGAATGAGTACACGACATGTGGGCTGAGACCATAACTGTAGTGGT

 LeuLeuLeuAlaValPheGlyProLeuTrpIleLeuGlnAlaSerLeuLeuLysValPro
 1321 AATTGCTGCTGGCGTCTCGGACCCCTTGGATTCTCAAGCCAGTTGCTAAAGTAC
 TTAACGACGACCGGCAGAACGCTGGGAAACCTAACAGAAGTTGGTCAAACGAATTTCATG

 TyrPheValArgValGlnGlyLeuLeuArgPheCysAlaLeuAlaArgLysMetIleGly
 1381 CCTACTTTGCGCGTCCAAGGCCTCTCGGGTCTGCGCGTTAGCGCGGAAGATGATCG
 GGATGAAACACGCGCAGGGTCCGGAAGAGGCCAAGACGCGCAATCGGCCCTACTAGC

 GlyHisTyrValGlnMetValIleIleLysLeuGlyAlaLeuThrGlyThrTyrValTyr
 1441 GAGGCCATTACGTGCAAATGGTCATCATTAAGTTAGGGCGCTACTGGCACCTATGTT
 CTCCGGTAATGCACTGTTACCAAGTAGTAATTCAATCCCCGCAATGACCGTGGATACAAA

 AsnHisLeuThrProLeuArgAspTrpAlaHisAsnGlyLeuArgAspLeuAlaValAla
 1501 ATAACCATCTCACTCCTCTGGGACTGGCGCACACGGCTTGCAGAGATCTGGCGTGG
 TATTGGTAGAGTGAGGAGAACCCGTGACCCGCGTGTGCGAACGCTCTAGACCGGCACC

 ValGluProValValPheSerGlnMetGluThrLysLeuIleThrTrpGlyAlaaspThr
 1561 CTGTAGAGCCAGTCGTCTCTCCAAATGGAGACCAAGCTCATCACGTGGGGGGCAGATA
 GACATCTCGGTCAAGAGGGTTTACCTCTGGTTCAGTAGTGCACCCCCCGTCTAT

 AlaAlaCysGlyAspIleIleAsnGlyLeuProValSerAlaArgArgGlyArgGluIle
 1621 CCGCCGCGTGCAGTGCACATCATCAACGGCTTGCCTGTTCCGCCGAGGGGCCGGAGA
 GGCGCGCACGCCACTGTAGTAGTGCAGAACGGACAAAGGCCGCGTCCCCGGCCCTCT

 LeuLeuGlyProAlaAspGlyMetValSerLysGlyTrpArgLeuLeuAlaProIleThr
 1681 TACTGCTCGGCCAGCCGATGGAATGGCTCTCAAGGGGTTGGAGGTTGCTGGCGCCATCA
 ATGACGAGCCCCGGTCGGCTACCTTACCAAGAGGTTCCCCACCTCCAACGACCGCGGGTAGT

 AlaTyrAlaGlnGlnThrArgGlyLeuLeuGlyCysIleIleThrSerLeuThrGlyArg
 1741 CGGCCTACGCCAGCAGACAAGGGGCCCTCTAGGGTGCATAATCACAGCCTAACTGGCC
 GCGCATGCGGGTCTGTGTTCCCGAGGATCCCACGTATTAGTGGTGGATTGACCGG

 AspLysAsnGlnValGluGlyGluValGlnIleValSerThrAlaAlaGlnThrPheLeu
 1801 GGGACAAAACCAAGTGGAGGGTGAGGTCCAGATTGTCACTGCTGCCAAACCTCC
 CCCTGTTTGGTACCTCCACTCCAGGTCTAACACAGTTGACGACGGGTTTGGAG

 AlaThrCysIleAsnGlyValCysTrpThrValTyrHisGlyAlaGlyThrArgThrIle
 1861 TGGCAACGTGCATCAATGGGGTGTGCTGGACTGTCTACCAACGGGGCCGGAACGAGGACCA
 ACCGGTGCACGTAGTTACCCACACGACACTGACAGATGGTGGCCCGGCCCTGCTCTGGT

 AlaSerProLysGlyProValIleGlnMetTyrThrAsnValAspGlnAspLeuValGly
 1921 TCGCGTCACCCAAGGGTCTGTCACTCCAGATGTATAACCAATGTAGACCAAGACCTTGTGG



FIG. 47C

TrpProAlaProGlnGlySerArgSerLeuThrProCysThrCysGlySerSerAspLeu
 1981 GCTGGCCCGCTCCGCAAGGTAGCCGCTCATTGACACCCCTGCACTTGCGGGCTCCTCGGACC
 CGACCGGGCGAGGCCTTCATCGCGAGTAACGTGGGACGTAAACGCCGAGGAGCCTGG
 TyrLeuValThrArgHisAlaAspValIleProValArgArgArgGlyAspSerArgGly
 2041 TTTACCTGGTCACGAGGCACGCCGATGTCATTCCGCTGCAGGGGTGATAGCAGGG
 AAATGGACCAAGTGCCTCGCTACAGTAAGGGCACGCCGCCCCACTATCGTCCC
 SerLeuLeuSerProArgProIleSerTyrLeuLysGlySerSerGlyGlyProLeuLeu
 2101 GCAGCCTGCTGTCGCCCGGCCATTCTACTTGAAAGGCTCCTCGGGGGTCCGCTGT
 CGTCGGACGACAGCAGGGGCCGGTAAGGATGAACCTTCGAGGAGCCCCCAGGGCGACA
 CysProAlaGlyHisAlaValGlyIlePheArgAlaAlaValCysThrArgGlyValAla
 2161 TGTGCCCCGGGGCACGCCGTTGGCATATTAGGGCCGCGGTGTCACCCGTGGAGTGG
 ACACGGGGCGCCCCGTGCGGCACCCGTATAAATCCCGGCCACACGTGGGACCTCAC
 LysAlaValAspPheIleProValGluAsnLeuGluThrThrMetArgSerProValPhe
 2221 CTAAGGCGGTGGACTTATCCCTGTTGGAGAACCTAGAGACAAACATGAGGTCCCCGGTGT
 GATTCCGCCACCTGAAATAGGGACACCTTGGATCTGTGGTACTCCAGGGGCCACA
 ThrAspAsnSerSerProProValValProGlnSerPheGlnValAlaHisLeuHisAla
 2281 TCACGGATAACTCCTCTCCACCAAGTAGTGCCTCAGAGCTTCAGGTGGCTCACCTCCATG
 AGTGCCTATTGAGGAGAGGTGGTACACGGGGTCTCGAAGGTCCACCGAGTGGAGGTAC
 ProThrGlySerGlyLysSerThrLysValProAlaAlaTyrAlaAlaGlnGlyTyrLys
 2341 CTCCCCACAGGCAGCGCAAAAGACCAAGGTCCGGCTGCATATGCAGCTCAGGGCTATA
 GAGGGTGTCCGTCGCCGTTTGTGGTCCAGGGCCGACGTATACTCGAGTCCCAGTAT
 ValLeuValLeuAsnProSerValAlaAlaThrLeuGlyPheGlyAlaTyrMetSerLys
 2401 AGGTGCTAGTACTCAACCCCTCTGGCTGAAACACTGGGCTTGGCTTACATGTCCA
 TCCACGATCATGAGTTGGGAGACAAACGACGTTGTGACCCGAAACACGAATGTACAGGT
 AlaHisGlyIleAspProAsnIleArgThrGlyValArgThrIleThrGlySerPro
 2461 AGGCTCATGGGATCGATCCTAACATCAGGACCGGGGTGAGAACAAATTACCAACTGGCAGCC
 TCCGAGTACCTAGCTAGGATTGTAGTCCCTGGCCACTCTTGTAAATGGTGACCGTGG
 IleThrTyrSerThrTyrGlyLysPheLeuAlaAspGlyGlyCysSerGlyGlyAlaTyr
 2521 CCATCACGTACTCCACCTACGGCAAGTTCCTGCCAGGGGGGTGCTCGGGGGCGCTT
 GGTAGTGCATGAGGTGGATGCCGTTCAAGGAACGGCTGCCGCCACGAGCCCCCGCGAA
 AspIleIleIleCysAspGluCysHisSerThrAspAlaThrSerIleLeuGlyIleGly
 2581 ATGACATAATAATTGTGACGAGTGCACACTCACGGATGCCACATCCATCTGGGCATCG
 TACTGTATTATAAACACTGCTCACGGTGAGGTGCCTACGGTGTAGGTAGAACCCGTAGC
 ThrValLeuAspGlnAlaGluThrAlaGlyAlaArgLeuValLeuAlaThrAlaThr
 2641 GCACTGTCCTGACCAAGCAGAGACTGCAGGGCGAGACTGGTGTGCTCGCCACCGCCA
 CGTGACAGGAACGGTTCTGACGCCCGCTCTGACCAACACGAGCGGGTGGCGGT
 ProProGlySerValThrValProHisProAsnIleGluGluValAlaLeuSerThrThr
 2701 CCCCTCCGGGCTCCGTCACTGTGCCCATCCAACATCGAGGAGGTGCTCTGTCCACCA
 GGGGAGGCCGAGGCAGTGACACGGGGTAGGGTTGTAGCTCTCCAAACGAGACAGGTGGT
 GlyGluIleProPheTyrGlyLysAlaIleProLeuGluValIleLysGlyGlyArgHis
 2761 CCGGAGAGATCCCTTTTACGGCAAGGCTATCCCCCTCGAAGTAATCAAGGGGGGGAGAC
 GCCCTCTCTAGGGAAAATGCCGTTCCGATAGGGGGAGCTCATTAGTTCCCCCTCTG
 LeuIlePheCysHisSerLysLysCysAspGluLeuAlaAlaLysLeuValAlaLeu
 2821 ATCTCATCTTCTGTCATTCAAAGAAGAAGTGCACGAACTGCCGAAAGCTGGTCGCA
 TAGAGTAGAACAGTAAGTTCTTCACGCTGCTTGAGCGCGTTTCGACCCAGCGTA
 GlyIleAsnAlaValAlaTyrTyrArgGlyLeuAspValSerValIleProThrSerGly
 2881 TGGGCATCAATGCCGTGGCCTACTACCGCGGTCTTGACGTGTCATCCGACCGAGCG
 ACCCGTAGTTACGGCACCGGATGAGGCGCCAGAACTGCACAGGAGTAGGGCTGGTCG
 AspValValValValAlaThrAspAlaLeuMetThrGlyTyrThrGlyAspPheAspSer
 2941 GCGATGTTGTCGTGGCAACCGATGCCCTCATGACCGGCTATACGGCGACTTCGACT
 CGCTACAACAGCAGCACCGTTGGCTACGGGAGTAACGGCGATATGGCCGCTGAAGCTGA



FIG. 47D

ValIleAspCysAsnThrCysValThrValAspPheSerLeuAspProThrPhe
3001 CGGTGATAGACTGCAATACGTGTCACCCAGACAGTCGATTCAGCCTTGACCTACT
GCCACTATCTGACGTTATGCACACAGTGGCTGTCAAGCTAAAGTCGGAACGTGGATGGA

ThrIleGluThrIleThrLeuProGlnAspAlaValSerArgThrGlnArgArgGlyArg
3061 TCACCATGAGACAATACGCTCCCCCAGGATGCTGTCAGCCTACAAAGTCGGGCA
AGTGGTAACTCTGTTAGTGCAGGGGGCTACGACAGAGGGCGTGAGTTGCAGCCCCGT

ThrGlyArgGlyLysProGlyIleTyrArgPheValAlaProGlyGluArgProSerGly
3121 GGACTGGCAGGGGAAGCCAGGCATCTACAGATTTGTCACCGGGGAGCGCCCTCG
CCTGACCGTCCCCCTCGGTCCGTAGATGCTAAACACCGTGGCCCCCTCGCGGGGAGGC

MetPheAspSerSerValLeuCysGluCysTyrAspAlaGlyCysAlaTrpTyrGluLeu
3181 GCATGTTGACTCGTCCGCTCTGTGAGTGTATGACGCAGGCTGTGCTGGTATGAGC
CGTACAAGCTGAGCAGGCAGGAGACACTCACGATACTGCGTCCGACACGAACCATACTCG

ThrProAlaGluThrThrValArgLeuArgAlaTyrMetAsnThrProGlyLeuProVal
3241 TCACGCCCGCCGAGACTACAGTTAGGCTACGAGCGTACATGAACACCCCCGGGGCTTCCG
AGTGCGGCGGCTCTGATGTCATCCGATGCTCGATGACTTGTGGGGCCCCGAAGGGC

CysGlnAspHisLeuGluPheTrpGluGlyValPheThrGlyLeuThrHisIleAspAla
3301 TGTGCCAGGACCATCTTGAATTTGGGAGGGCGTCTTACAGGCCTACTCATATAGATG
ACACGGTCTGGTAGAACTTAAACCCCTCCCGCAGAAATGTCGGAGTGAATATCTAC

HisPheLeuSerGlnThrLysGlnSerGlyGluAsnLeuProTyrLeuValAlaTyrGln
3361 CCCACTTTCTATCCCAGACAAAGCAGAGTGGGAGAACCTTCTACCTGGTAGCGTACC
GGGTGAAAGATAGGGCTGTTCTCACCCCTTGGAAAGGAATGGACCATCGCATGG

AlaThrValCysAlaArgAlaGlnAlaProProSerTrpAspGlnMetTrpLysCys
3421 AAGCCACCGTGTGCCTAGGGCTAACGCCCTCCCCATCGTGGGACCAGATGTGGAAGT
TTCGGTGGCACACCGCATCCGAGTTGGGAGGGTAGCACCCCTGGTACACCTTC

LeuIleArgLeuLysProThrLeuHisGlyProThrProLeuLeuTyrArgLeuGlyAla
3481 GTTGATTGCCTCAAGCCCACCCCTCATGGCCAACACCCCTGCTATACAGACTGGCG
CAAACTAAGCGGAGTTCGGGTGGGAGGTACCCGGTTGTGGGACGATATGTCACCCGC

ValGlnAsnGluIleThrLeuThrHisProValThrLysTyrIleMetThrCysMetSer
3541 CTGTTAGAAATCACCTGACGCACCCAGTCACCAAATACATCATGACATGCATGT
GACAAGTCTTACTTTAGTGGACTGCGTGGGTAGTGGTTATGTAGTACTGTACGTACA

AlaAspLeuGluValValThrSerThrTrpValLeuValGlyGlyValLeuAlaAlaLeu
3601 CGGCCGACCTGGAGGTGTCACGAGCACCTGGGTGCTCGTGGCGCGCTGGCTGCTT
GCCGGCTGGACCTCCAGCAGTGCTCGTGGACCCACGAGCAACCGCCGAGGACCGACGAA

AlaAlaTyrCysLeuSerThrGlyCysValValIleValGlyArgValValLeuSerGly
3661 TGGCCGCGTATTGCCTGTCAACAGGCTGCGTGGTCAGTGGGAGGGTCGCTTGTCCG
ACCGGCGATAACGGACAGTTGTCCGACGCACCAAGTACCCGTCCAGCAGAACAGGC

LysProAlaIleIleProAspArgGluValLeuTyrArgGluPheAspGluMetGluGlu
3721 GGAAGCCGGCAATCATACCTGACAGGGAAAGTCTTACCGAGAGTTGATGAGATGGAAG
CCTTCGGCGTTAGTATGGACTGTCCTTCAGGAGATGGCTCTAACAGTACTCACCTTC

CysSerGlnHisLeuProTyrIleGluGlnGlyMetMetLeuAlaGluGlnPheLysGln
3781 AGTGCCTCAGCACTTACCGTACATCGAGCAAGGGATGATGCTGCCGAGCAGTTCAAGC
TCACGAGAGTCGTGAATGGCATGTAGCTCGTCCCTACTACGAGCGGCTCGTCAAGTCG

LysAlaLeuGlyLeuLeuGlnThrAlaSerArgGlnAlaGluValIleAlaProAlaVal
3841 AGAAGGGCCCTCGGCCTCTGCAGACCGCGTCCGTCAGGCAGAGGTTATGCCCTGCT
TCTTCGGGAGCCGGAGGACGTCTGGCGCAGGGCAGTCGTCTCCAATAGCGGGGACGAC

GlnThrAsnTrpGlnLysLeuGluThrPheTrpAlaLysHisMetTrpAsnPheIleSer
3901 TCCAGACCAACTGGCAAAAAACTCGAGACCTCTGGCGAAGCATAATGTGGAACCTCATCA
AGGTCTGGTTGACCGTTTGAGCTCTGGAAGACCCGCTTCGTATACACCTGAAGTAGT

GlyIleGlnTyrLeuAlaGlyLeuSerThrLeuProGlyAsnProAlaIleAlaSerLeu
3961 GTGGGATAACAATCTTGGCGGGCTGTCAACGCTGCCCTGGTAACCCGCCATTGCTTCAT
CACCTATGTTATGAACCGCCCCAACAGTTGCAGGGACCATGGGCGGTAAACGAAGTA



FIG. 47E

MetAlaPheThrAlaAlaValThrSerProLeuThrThrSerGlnThrLeuLeuPheAsn
 4021 TGATGGCTTTACAGCTGTCACCAGCCCACTAACACTAGCCAAACCCCTCTCTCA
 ACTACCGAAAAATGTCGACGACAGTGGTCGGGTGATTGGTATCGGTTGGGAGGAGAAGT

 IleLeuGlyGlyTrpValAlaAlaGlnLeuAlaAlaProGlyAlaAlaThrAlaPheVal
 4081 ACATATTGGGGGGGGTGGGTGGCTGCCAGCTCGCCGCCGGTGCCTACTGCCTTG
 TGTATAACCCCCCCCACCCACCGACGGGTCGAGCGCGGGGCCACGGCGATGACGGAAAC

 GlyAlaGlyLeuAlaGlyAlaAlaIleGlySerValGlyLeuGlyLysValLeuIleAsp
 4141 TGGGCGCTGGCTTAGCTGGCGCCATCGGCAGTGGACTGGGAAAGGTCTCATAG
 ACCCGCGACCGAACATCGACCGCGCGGTAGCCGTACAACCTGACCCCTCAGGAGTATC

 IleLeuAlaGlyTyrGlyAlaGlyValAlaGlyAlaLeuValAlaPheLysIleMetSer
 4201 ACATCCTTGCAAGGGTATGGCGCGGGCGTGGCGGGAGCTCTGTGGCATTCAAGATCATGA
 TGTAGGAACGTCCCATAACCGCGCCCGCACCGCCCTCGAGAACACCGTAAGTTCTAGTACT

 GlyGluValProSerThrGluAspLeuValAsnLeuLeuProAlaIleLeuSerProGly
 4261 GCGGTGAGGTCCCCTCCACGGAGGACCTGGCAATCTACTGCCGCATCCTCGCCCG
 CGCCACTCCAGGGAGGGTGCCTCTGGACCAGTTAGATGACGGCGTAGGAGAGCGGGC

 AlaLeuValValGlyValValCysAlaAlaIleLeuArgArgHisValGlyProGlyGlu
 4321 GAGCCTCGTAGTCGGCGTGGTCTGTGCAGCAATACTGCGCCGGCACGTTGGCCCGGCG
 CTCGGGAGCATCAGCCGACCAAGACAGTCGTTATGACGCGGCCGTGCAACCGGGCCGC

 GlyAlaValGlnTrpMetAsnArgLeuIleAlaPheAlaSerArgGlyAsnHisValSer
 4381 AGGGGGCAGTGCAGTGGATGAACCGGCTGATAGCCTCGCTCCGGGGAAACCATGTTT
 TCCCCCGTCACGTACCTACTTGGCCACTATCGAAGCGGAGGGCCCCCTGGTACAAA

 ProThrHisTyrValProGluSerAspAlaAlaAlaArgValThrAlaIleLeuSerSer
 4441 CCCCCACGCACGTGGCAGAGCGATGCAGCTGCCCGTCACTGCCATACTCAGCA
 GGGGGTGCCTGATGCACGGCCTCTCGTACGTCACGGCGAGTGAACGGTATGAGTCGT

 LeuThrValThrGlnLeuLeuArgArgLeuHisGlnTrpIleSerSerGluCysThrThr
 4501 GCCTCACTGTAACCCAGCTCCTGAGGCAGTGCACAGTGGATAAGCTCGGAGGTACCA
 CGGAGTGACATTGGTCGAGGACTCCGCTGACGTGGTCACCTATTGAGCCTCACATGGT

 ProCysSerGlySerTrpLeuArgAspIleTrpAspTrpIleCysGluValLeuSerAsp
 4561 CTCCATGCTCCGGTTCCCTGGCTAAGGGACATCTGGACTGGATATGCGAGGTGTTGAGCG
 GAGGTACGAGGCCAAGGACCGATTCCCTGTAGACCCCTGACCTATACGCTCCACAACTCGC

 PheLysThrTrpLeuLysAlaLysLeuMetProGlnLeuProGlyIleProPheValSer
 4621 ACTTTAACCTGGCTAAAGCTAACGCTCATGCCACAGCTGCCCTGGGATCCCCTTGTG
 TGAAATTCTGGACCGATTTCGATTGAGTACGGTGTGACGGACCCCTAGGGGAAACACA

 CysGlnArgGlyTyrLysGlyValTrpArgValAspGlyIleMetHisThrArgCysHis
 4681 CCTGCCAGCGCGGGTATAAGGGGGTCTGGCGAGTGGACGGCATCATGCACACTCGCTGCC
 GGACGGTCGCGCCCATATCCCCCAGACCGCTCACCTGCCGTAGTACGTGTGAGCGACGG

 CysGlyAlaGluIleThrGlyHisValLysAsnGlyThrMetArgIleValGlyProArg
 4741 ACTGTGGAGCTGAGATCACTGGACATGTCAAAACGGGACGATGAGGATCGTGGTCCTA
 TGACACCTCGACTTAGTGACCTGTACAGTTTGCCCTGACTCCTAGCAGCCAGGAT

 ThrCysArgAsnMetTrpSerGlyThrPheProIleAsnAlaTyrThrThrGlyProCys
 4801 GGACCTGCAGGAACATGTGGAGTGGGACCTCCCTTAATGCCCTACACCACGGGCCCC
 CCTGGACGTCCTTGTACACCTCACCTGGAAAGGGGTAATTACGGATGTGGTGCCCGGGGA

 ThrProLeuProAlaProAsnTyrThrPheAlaLeuTrpArgValSerAlaGluGluTyr
 4861 GTACCCCCCTTCCCTGCGCCGAACATACACGTTCGCGTATGGAGGGTGTCTGCAGAGGAAT
 CATGGGGGGAAAGGACGCGGCTGATGTGCAAGCGCGATACCTCCACAGACGTCTCCTTA

 ValGluIleArgGlnValGlyAspPheHisTyrValThrGlyMetThrAspAsnLeu
 4921 ATGTGGAGATAAGGCAGGTGGGGACTTCCACTACGTGACGGGTATGACTACTGACAATC
 TACACCTATTCGTCACCCCTGAAGGTGATGCACTGCCCATACTGATGACTGTTAG

 LysCysProCysGlnValProSerProGluPhePheThrGluLeuAspGlyValArgLeu
 4981 TCAAATGCCGTGCGAGGTCCCATGCCGAATTTCACAGAATTGGACGGGGTGC
 AGTTTACGGGCACGGTCCAGGGTAGCGGGCTTAAAAAGTGTCTAACCTGCCACGC



FIG. 47F

HisArgPheAlaProProCysLysProLeuLeuArgGluGluValSerPheArgValGly
5041 TACATAGTTGCGCCCCCTGCAAGCCCTTGCTGCGGGAGGAGGTATCATTAGCTAGTAG
ATGTATCCAAACGCGGGGGACGTTGGAACGACGCCCTCCATAGTAAGTCTCATC

LeuHisGluTyrProValGlySerGlnLeuProCysGluProGluProAspValAlaVal
5101 GACTCCACGAATACCGGTAGGGTCGCAATTACCTTGCAGGCCAACCGGACGTGGCCG
CTGAGGTGCTTATGGGCATCCAGCTTAATGGAACGCTCGGGCTTGGCCTGCACCGGC

LeuThrSerMetLeuThrAspProSerHisIleThrAlaGluAlaAlaGlyArgArgLeu
5161 TGTTGACGTCCATGCTCACTGATCCCTCCATATAACAGCAGAGGCGGCCGCGAAGGT
ACAACTGCAGGTACGAGTGACTAGGGAGGGTATATTGTCGTCTCCGCCGCCCCGCTTCCA

AlaArgGlySerProProSerValAlaSerSerSerAlaSerGlnLeuSerAlaProSer
5221 TGGCGAGGGGATCACCCCCCTCTGTGGCCAGCTCCTCGCTAGCCAGCTATCGCTCCAT
ACCGCTCCCTAGTGGGGGAGACACCGGTGAGGAGCCATCGGTGATAGGCAGGTA

LeuLysAlaThrCysThrAlaAsnHisAspSerProAspAlaGluLeuIleGluAlaAsn
5281 CTCTCAAGGCAACCTGCACCGCTAACCATGACTCCCTGATGCTGAGCTCATAGAGGCCA
GAGAGTTCCGTTAACGTGGCGATTGACTGAGGGACTACGACTCGAGTATCTCCGGT

LeuLeuTrpArgGlnGluMetGlyGlyAsnIleThrArgValGluSerGluAsnLysVal
5341 ACCTCCTATGGAGGCAGGAGATGGCGGCAACATCACCAGGGTTGAGTCAGAAAAACAAAG
TGGAGGATACTCCGTCTAACCGCCGTTGAGTGGTCCCACACTCAGTCTTTGTTTC

ValIleLeuAspSerPheAspProLeuValAlaGluGluAspGluArgGluIleSerVal
5401 TGGTGATTCTGGACTCCTCGATCCGCTGTGGCGGAGGAGCGAGCGGGAGATCTCCG
ACCACTAACGACCTGAGGAAGCTAGGCACACCCGCCTCTGCTCGCCCTAGAGGC

ProAlaGluIleLeuArgLysSerArgArgPheAlaGlnAlaLeuProValTrpAlaArg
5461 TACCCGCAGAAATCCTGCGGAAGTCTCGGAGATTGCGCCAGGCCCTGCCCCTGGCGC
ATGGGCGTCTTAGGACGCCCTAAGCGGCTCCGGGACGGCAAAACCGCG

ProAspTyrAsnProProLeuValGluThrTrpLysProAspTyrGluProProVal
5521 GGCCGGACTATAACCCCCCGCTAGTGGAGACGTGGAAAAAGGCCGACTACGAAACCACCTG
CCGGCCTGATATTGGGGGGCGATCACCTCTGCACCTTTTCGGGCTGATGCTTGGTGGAC

ValHisGlyCysProLeuProProLysSerProProValProProArgLysLys
5581 TGGTCCATGGCTGCCGTTCCACCTCAAAGTCCCCTCTGTGCCTCCGCCCTCGGAAGA
ACCAGGTACCGACAGGCGAAGGTGGAGGTTCAAGGGAGGACACGGAGGCGGAGCCTCT

ArgThrValValLeuThrGluSerThrLeuSerThrAlaLeuAlaGluLeuAlaThrArg
5641 AGCGGACGGTGGCTCTACTGAATCAACCCTATCTACTGCCTGGCCGAGCTGCCACCA
TCGCCTGCCACCAAGGAGTGACTTAGTTGGGATAGATGACGGAACCGGCTCGAGCGGTGGT

SerPheGlySerSerSerThrSerGlyIleThrGlyAspAsnThrThrSerSerGlu
5701 GAAGCTTGGCAGCTCCTCAACTTCCGGCATTACGGGGGACAATACGACAACATCCTCTG
CTTCGAAACCGTCGAGGAGTTGAAGGCCGTAATGCCGCTGTTATGCTGTTGAGGAGAC

ProAlaProSerGlyCysProProAspSerAspAlaGluSerTyrSerSerMetProPro
5761 AGCCCGCCCTCTGGCTGCCCGGACTCGACGCTGAGTCCTATTCCATGCC
TCGGCGGGGAAGACCGACGGGGGCTGAGGCTGCGACTCAGGATAAGGAGGTACGGGG

LeuGluGlyGluProGlyAspProAspLeuSerAspGlySerTrpSerThrValSerSer
5821 CCCTGGAGGGGGAGCCTGGGATCCGGATCTTAGCGACGGGTATGGTCAACGGTCAGTA
GGGACCTCCCCCTCGGACCCCTAGGCCCTAGAATCGTGCCAGTACCGAGTTGCCAGTCAT

GluAlaAsnAlaGluAspValValCysCysSerMetSerTyrSerTrpThrGlyAlaLeu
5881 GTGAGGGCCAACGCGGGAGGATGTCGTGTGCTCAATGTCTTACTCTGGACAGGCGCAC
CACTCCGGTTGCGCCTCTACAGCACACGACGAGTTACAGAATGAGAACCTGTCAGCGTG

ValThrProCysAlaAlaGluGluGlnLysLeuProIleAsnAlaLeuSerAsnSerLeu
5941 TCGTCACCCCGTGCAGCGGGAAAGAACAGAAACTGCCCATCAATGCACTAACGAAACTCGT
AGCAGTGGGGCACGCGGCCCTTCTGTCTTGACGGTAGTTACGTGATTGTTGAGCA

LeuArgHisAsnLeuValTyrSerThrThrSerArgSerAlaCysGlnArgGlnLys
6001 TGCTACGTACCAACAAATTGGGTATTCCACACCTCACGCACTGCTTGCCAAAGGCAGA
ACGATGCAAGTGGTGTAAACCACATAAGGTGGAGTGCAGCACGAACGGTTCCGTCT



FIG. 47G

LysValThrPheAspArgLeuGlnValLeuAspSerHisTyrGlnAspValLeuLysGlu
6061 AGAAAGTCACATTTGACAGACTGCAAGTCTGGACAGCATTACCAAGGACGTACTCAAGG
TCTTCAGTGTAAACTGTCTGACGTTCAAGACCTGTCGGTAATGGTCTGCATGAGTTCC
ValLysAlaAlaAlaSerLysValLysAlaAsnLeuLeuSerValGluGluAlaCysSer
6121 AGGTTAAAGCAGCGGCGTCAAAAGTGAAGGCTAACCTGCTATCCGTAGAGGAAGCTTGC
TCCAATTCGTCGCCGCAGTTTCACTCCGATTGAACGATAGGCATCTCCTTCGAACGT
LeuThrProProHisSerAlaLysSerLysPheGlyTyrGlyAlaLysAspValArgCys
6181 GCCTGACGCCCCCACACTCAGCCAAATCCAAGTTGGTTATGGGCAAAAGACGTCCGTT
CGGACTGCGGGGGTGTGAGTCGGTTAGGTTCAAACCAATACCCGTTCTGCAGGCAA
HisAlaArgLysAlaValThrHisIleAsnSerValTrpLysAspLeuLeuGluAspAsn
6241 GCCATGCCAGAAAGGCCGTAAACCCACATCAACTCCGTGGAAAGACCTCTGGAAAGACA
CGGTACGGTCTTCCGGCATTGGGTAGTTGAGGCACACCTTCTGGAAAGACCTCTGT
ValThrProIleAspThrThrIleMetAlaLysAsnGluValPheCysValGlnProGlu
6301 ATGTAACACCAATAGACACTACCATCATGGCTAAGAACGAGGTTCTGCCTCAGCCTG
TACATTGTGGTTATCTGTGATGGTAGTACGATTCTGCTCCAAAAGACGCAAGTCGGAC
LysGlyGlyArgLysProAlaArgLeuIleValPheProAspLeuGlyValArgValCys
6361 AGAAGGGGGGTCGTAAGCAGCTCGTCATCGTGTCCCCGATCTGGCGTGCACGTGT
TCTTCCCCCAGCATTGCGTCAAGCAGAGTAGCACAAGGGCTAGACCCGCACCGCACA
GluLysMetAlaLeuTyrAspValValThrLysLeuProLeuAlaValMetGlySerSer
6421 GCGAAAAGATGGCTTGTACGACGTGGTACAAAGCTCCCTGGCGTGATGGGAAGCT
CGTTTCTACCGAAACATGCTCACCAATGTTGAGGGGACCGGCACTACCCCTCGA
TyrGlyPheGlnTyrSerProGlyGlnArgValGluPheLeuValGlnAlaTrpLysSer
6481 CCTACGGATTCCAATACTCACCAGGACAGCGGGTTGAATTCTCGTGCAAGCGTGGAACT
GGATGCCCTAAGGTTATGAGTGGCTCTGCGCCCAACTTAAGGAGCACGTTGCACTTCA
LysLysThrProMetGlyPheSerTyrAspThrArgCysPheAspSerThrValThrGlu
6541 CCAAGAAAACCCAATGGGTTCTCGTATGATACCGCTGCTTGACTCCACAGTCACTG
GGTTCTTGGGTTACCCAAGAGCATACTATGGCGACGAAACTGAGGTGTCAGTGAC
SerAspIleArgThrGluGluAlaIleTyrGlnCysCysAspLeuAspProGlnAlaArg
6601 AGAGCGACATCCGTACGGAGGCAATCTACCAATGTTGTGACCTCGACCCCCAAGCCC
TCTCGCTGTAGGCATGCCTCTCCGTTAGTGGTTACAACACTGGAGCTGGGGTTCGGG
ValAlaIleLysSerLeuThrGluArgLeuTyrValGlyGlyProLeuThrAsnSerArg
6661 GCGTGGCCATCAAGTCCCTCACCGAGAGGCTTATGTTGGGGCCCTCTTACCAATTCAA
CGCACCGGTAGTTAGGGAGTGGCTCTCGAAATACAACCCCCGGAGAATGGTTAAGTT
GlyGluAsnCysGlyTyrArgArgCysArgAlaSerGlyValLeuThrThrSerCysGly
6721 GGGGGGAGAACTCGGGCTATCGCAGGTGCGCGAGCAGCGTACTGACAACTAGCTGTG
CCCCCTCTGACGCCATAGCGTCCACGGCGCGCTGCCGATGACTGTTGACGACAC
AsnThrLeuThrCysTyrIleLysAlaArgAlaAlaCysArgAlaAlaGlyLeuGlnAsp
6781 GTAACACCCCTCACTTGCTACATCAAGGCCGGCAGCCTGTCGAGGCCGAGGGCTCCAGG
CATTGTGGGAGTGAACGATGTAGTTCCGGGCCGTCGGACAGCTCGCGTCCCAGGTCC
CysThrMetLeuValCysGlyAspAspLeuValValIleCysGluSerAlaGlyValGln
6841 ACTGCACCATGCTCGTGTGGCGACGACTTAGTCGTTATCTGTGAAAGCGCGGGGGTCC
TGACGTGGTACGAGCACACACCGCTGCTGAATCAGCAATAGACACTTCCGCCCCCAGG
GluAspAlaAlaSerLeuArgAlaPheThrGluAlaMetThrArgTyrSerAlaProPro
6901 AGGAGGGACGCCGAGCCTGAGAGGCCCTCACGGAGGCTATGACCAAGGTACTCCGCC
TCCTCCTGCCGCCGCTGGACTCTCGGAAGTGCCTCCGATACTGGTCCATGAGGGGGGGGG
GlyAspProProGlnProGluTyrAspLeuGluIleThrSerCysSerSerAsnVal
6961 CTGGGGACCCCCACAACCAAGAACGACTTGAGGCTCATACATCATGCTCCTCCAAACG
GACCCCTGGGGGGTGTGGTCTATGCTGAACCTCGAGTATTGTAGTACGAGGAGGTTGC
SerValAlaHisAspGlyAlaGlyLysArgValTyrTyrLeuThrArgAspProThrThr
7021 TGTCAGTCGCCACGACGGCGCTGGAAAGAGGGTCTACTACCTCACCCGTGACCCCTACAA
ACAGTCAGCGGGTGCTGCCGCACCTTCTCCAGATGATGGAGTGGCACTGGGATGTT

FIG. 47H

ProleuAlaArgAlaAlaTrpGluThrAlaArgHisThrProValAsnSerTrpLeuGly
7081 CCCCTCGCGAGAGCTGCTGGAGAACACACTCCAGTCATAATTCCCTGGCTAG
GGGGGGACGCTCTCGACGCCCTGTGAGGTCAAGTAAAGGACCGATC
AsnIleIleMetPheAlaProThrLeuTrpAlaArgMetIleLeuMetThrHisPhePhe
7141 GCAACATTAATCATGTTGCCACACTGTGGCGAGGATGATACTGTACCCATTCT
CGTTGATTAGTACAAACGGGGGTGTGACACCCGGCTACTATGACTACTGGTAAAGA
SerValLeuIleAlaArgAspGlnIleGluGlnAlaAlaLeuAspCYSGLIUIIleTYrgIYAla
7201 TTAGCGTCCTATAGCCAGG6ACCGCTTGAACAGGGCCCTGAGATCTACGGGG
AATCGCAGGAATATCGGTCCTGGTCCGAACTTGTCCGGGAGCTAACGCTCTAGATGCC
CysTyrSerIleGluProLeuAspLeuProProIleLeuArgLeu
7261 CCTGCTACTCCATAGAACCACTTGATCTACCTCAAATCATTCAAAGACTC
GGACGATGAGGTATCTGGTGAACTAGATGGAGTTAGTAAGTTCTGAG



FIG. 48

proSerProValValValAla1GlyThrAspArgSerGlyAlaProThrTyrrSerTrpGly
1 CTCAGCCCCGGTGGTGGGAACGACCCCTGCTGGCTGTCCAGCCCCGGGATGGATGGTACAGCTGGG
GluAsnAspThrAspValPheValLeuAsnAsnThrArgProProLeuGlyAsnTrpPhe
61 GTGAAATGATAACGGACGTCTTCGCTTAACAATACCAGGCCACCGCTGGCAATTGGT
CACTTTACTATGCTGAGAAGCAGGAATTGTTATGGTCCGGTGGGACCCGGTTAACCA
GlyCystThrTrpMetAsnSerThrGlyPheThrLysValCysGlyAlaProProCysVal
121 TCGGTGTAACCTGGATGAACCTCAACTGGATTAAGTGGTTCACACGCCCTGGGGAGGGCCTCCTGTG
AGCCAACATGGACCTACTTGACTTGACCTAAGTGGTTCACACGCCCTGGGGAGGGAACAC
IleGlyGlyAlaGlyAlaGlyAsnThrLeuHisCysProThrAspCysPheArgLysIlePro
181 TCATCGGAGGGGGGGCAACAAACACCCCTGCACTGCCCCACTGATTGCTTCCGCAAGCATC
AGTAGCCTCCCCGGGGTGTGTTGGGACGGTGAACGGGGTGAACAAAGGAAGGGCGTTCGTAG
AspAlaThrTyrrSerArgCysGlySerGlyProTrpLeuThrProArgCysLeuValAsp
241 CGGACGCCACATACTCTGGTGGGCTCCGGCTACACCAGGTGCTCACACGGGACCGAGGTGGTCCACGGGACCA
GCCTGGGGTGTATGAGAGGCCACGGGAGGGCAGGGCAGGGCAGGGAGGTGGTCCACGGGACCA

TyrProTyrrArgLeuTrpHistYrProCysThrIleAsnTyrrThrIlePheLysIleArg
301 ACTACCCGTATAGGCTTGGCATTATCCTTGTACCATCAACTACACCATATTAAATCA
TGATGGCATATCCGAAACCGTAATAGGAACATGGTAGTTGATGTGGTATAAAATTAGT

MetTyrrValGlyValGluHisArgLeuGluAlaAlaCysAsnTrpThrArgGlyGlu
361 GGATGTACGTGGAGGGTGGAGCACAGGGCTGGAAAGCTGGCTGCCAACCTTGGCAACTGGACGGGGCG
CCTACATGCCACCTCCCCAGCTCGTGTCCGACGGACGGACGTTGACCTGGGCCCGC
-----Overlap with 12 f-----
ArgCysAspLeuGluAspArgSerGluLeuSerProLeuLeuThrThrThr
421 AACGGTTGGGATCTGGAAAGAACAGGGACAGGTCCGGAGCTCAGGCCGTTACTGGTGAACCA
TTGCAACGGCTAGACCTTGTCCCTGTGAGTGGCTGGCAATGACGACTGGTGAT

GlnTrpGlnValLeuProCysSerPheThrThrLeuProAlaLeuSerThrGlyLeu
481 CACAGTGGCAGGTCTCCCGTGTCCCTACAACCCCTGCCAGCCTGTCCACCCGGCCTCA
GTGTCACCGTCCAGGAGGGCACAGGAAGTGGTGGGACGGTGGAAACAGGTGGGGAGT





FIG. 49

LeuPheTerhishislySPheAsnSerSerGlyCysSProGluArgLeuAlaSerCysArg
 1 GCTTTCTATCACCACAAAGTCAACTCTAGGCTGTCCCTGAGAGGCTAGCCAGCTGCCG
 CGAAAGATACTGGTGTCAAGTTGAGAAGTCCGACAGGACTCTCCGATCGGTGACGGC
 ProLeuThrAspPheAspGlnGlyTrpGlyProLeSerTyralaAsnGlySerGlyPro
 61 ACCCTTACCGATTGACCAAGGGCTGGGCTATCAGTTATGCCAACGGAAGGGCCC
 TGGGAATGGCTAAACTGGTCCCACCCGGGATAGTCAAATAACGGTGCCTTCGGGG
 AspGlnArgProTyrcystRPhistYrProProLysProCysGlyIleValProAlaLys
 121 CGACCAGGCCCTACTGCTGGCACTACCTGGGTATTGTGCCGGAAACGCCATAACAGGGGCTT

181 ServalCys5GlyProValItyrcysPheThrProSerProValValVal
182 GACTGCTGTTGGTCCGGTATATTGCTTCACTCCACCCCCGTTGGCTGGG
183 CTCACACACACCAGGCCATATAACGAAGTGAACGCTCGGGCACCAACCC



FIG. 50

LeuValMetAlaGlnLeuLeuArgIleProGlnAlaIleLeuAspMetIleAlaGlyAla
1 TGTTAATGGCTCAGCTCCGGATCCCACAAGCCATCTGGACATGATGCTGGTGCT
AACCATTACCGAGTCGACGAGCCCTAGGGTGTGGTAGAACCTGACTAGGACACGAA
HisTrpGlyValLeuAlaGlyIleAlaItyrPheSerMetValGlyAsnTrpAlaLysVal
61 CACTGGGAGTCCTGGGGCATAGCGTATTCTCCATGGTGGGAACCTGGCGAAGGTC
GTGACCCCTCAGGACCCGCGTATCGCATAAAAGAGGTACCAACCCCTTGACCCGCTCCAG
LeuValLeuLeuPheAlaGlyValAlaAspAlaGluThrHisValThrGlyGlySer
121 CTGGTAGTGGCTGCTGCTATTGGCCGGCTCGACGGGAAACCCACGTCACCGGGGAAGT
GACCATCACGGACGATAAACGGCCGAGCTGGCCAGCTGGGTGAGTGGCCCCCTTCA
AlaGlyHisThrValSerGlyPheValSerLeuAlaProGlyAlaLysGlnAsnVal
181 GCCGGCCACACTGTGCTGATTGATTAGCCTCCTCGCACCGGCCAACGAGAACGTC
CGGGCGGGTGTGACACAGACACTAACAAATGGAGGGCTGGTCCGGGTCTGGTCTGCAG
GlnLeuIleAsnThrAsnGlySerTrpHisLeuAsnSerThrAlaLeuAsnCysAsnAsp
241 CAGCTGATCAACACCAACGGCAGTTGGCACCTCAATAAGCACGGCCCTGAAACTGCAATGAT
GTCGACTAGTTGGTGTGGAGTTATCGTGGGGACTTGACGTACTA
SerLeuAsnThrGlyTrpLeuAlaGlyLeuPheTyRhiShisLysPheAsnSerGly
301 AGCCCTCAACACGGCTGGTGGCAGGGCTTCTATCACCAAGTTCAACTCTTCAGGC
TCGGAGTTGGCCGACCAACCGTCCGAAAGATAGTGGTGTCAAGTTGAGAAGTCCG
-----Overlap with 26j-----
-----Overlap with K9-1-----
CysProGluArgLeuAlaSerCysArgPro
361 TGTCTGAGAGGCTAGCCAGCTGCCGACCC
ACAGGACTCTCCGATCGGTGACGGCTGGGG

FIG. 51

GlnGlyCysAsnCysSerIleTerProGlyHisIleTerGlyHisArgMetAlaTerPAsP
1 CGCAAGGTTGCAATTGCTCTATCTATCCCCCATATAACGGGTACCCGATGGCATGGG
GCGTCCAACGTTAACGAGATAAGGGGGTATATTGGCCAGTGGCGTACCGTACCC

MetMetMetAsnTrpSerProThrThrAlaLeuValMetAlaGlnLeuLeuArgIlePro
61 ATATGATGATGAACTGGTCCCTACCGACGGGTTGGTAATGGCTCAGCTGCTCCGGATCC
TATACTACTACTTGACCCAGGGATGCTGCCGAAACCATACCGAGTCGACCGAGGCTAGG

GlnAlaIleLeuAspMetIleAlaGlyAlaIleAsnTrpGlyValLeuAlaGlyIleAlaTerYR
121 CACAAGGCCATCTTGGACATGATCGCTGGCTCAGTGGGAGTCCCTGGCGGCATAGCGT
GTGTTGGTAGAACCTGTACTAGCGACCAAGCAGTGAACCCCTCAGGACCGCCGTATCGCA

-----Overlap with CA59a-----
PheSerMetValGlyAsnTrpAlaLysValLeuValValLeuLeuPheAlaGlyVal
181 ATTCTCCATGGTGGGAAACTGGCTGGTAGTGGCTGCTGGCTATTGCTGGCGCG
TAAAGAGGTACCCACCCCTTGACCCGCTCCAGGACCATCACGACGATAAACGGCCGC

AspAlaGluThrHisValThrGly
241 TCGACCGGAAACCCACGTCACCGGG
AGCTGGCCTTGGTGCAGTGGCCCC



FIG. 52

CysteineAlaMetThrProThrValAlaThrArgAspGlyLysLeuProAlaThrGln
1 GTGTTGGGGATGACCCCTACGGTGGCCACCAGGATGGAAACTCCCCGGGCTGGT
CACAAACCGCTACTGGGATGCCACCGTGGCTACCGTTGAGGGGGCTGGT

LewArgArgHisIleAspLeuLeuValGlySerAlaThrLeuCysSerAlaLeuThrVal
61 GCTTCGACGTACATCGATCTGCTTGTGGGAGGCCACCCCTCTGTTGGCCCTACGT
CGAAGCTGGCAGTGTAGCTAGACGAAACAGCCCTGGGGAGACAAGCCGGAGATGCA

GlyAspLeuCysGlySerValPheLeuValGlyGlnLeuPheThrPheSerProArgArg
121 GGGGGACCTATGGGGTCTGTCTTCTGTGGCCAACTGTTACCTTCTCTCCAGGGC
CCCCCTGGATACGCCAGACAGAAACAGGGTTGACAAGTGGAAAGAGGGGGTCCGC

HistpThrThrGlnGlyCysAsnCysSerIleThrProGlyHisIleThrGlyHisArg
181 CCACTGGACGACGGCAAGGTTGCAATTGCTCTATCTATCCGGCCATATAACGGGTCAACCG
GGTGACCTGCTGGTCCAACGTTAACGAGATAAGGGGGTATATTGCCAGTGGC

-----Overlap with CA84a-----
MetAlaTrpAspMetMetAsnTrpSerProThrThralaLeuValValAlaGlnLeu
241 CATGGCATGGGATAATGATGAACTGGTCCCTACGACGGGTTGGTAGTGGCTCAGCT
GTACCGTACCCATACTACTACTGACCAGGGATGCTGGCAACCATCACCGAGTCGA

LewArgIleProGlnAla
301 GCTCCGGATCCACAAGCC
CGAGGCTTAGGGTGGTGG





FIG. 53

SerThrGlyLeuTyrHisValThrAsnAspCysProAsnSerProCysSerIleValTyrGluAla
1 CTCACGGGCTTACCACTGACACTGCCATTACGATGCTGAGTATTGTGTACCGAGGC
GAGGTGCCGAAATGGTGCAGTGGTTACTAACGGGATTGAGCTATAACACATGCTCCG

AlaAspAlaIleLeuHisthrProGlyCysValProCysValArgGluGlyAsnAlaSer
61 GCCGATGCCATCCTGCACACTGCCATTGGGTGCGTCCCTGGCTCGTAGGGCAACGGCTC
CGGCTACGGTAGGACGTGTAGGGCCCACGGCAGGAAACGCAAGGACTCCGACTTGGGAG

ArgCystRpvAlAlaMetThrProThrValAlaThrArgAspGlyLysLeuProAlaThr
121 GAGGTGGGGATGACCCCTACGGGCCACAGGGATGGCAAACCTCCGGCTACCGTTGGC
CTCCACACCCACCGCTACTGGGATGCCACCGGTGGTCCCTACCGTTGGAGGGGGCTG

-----Overlap with CA156e-----
GlnLeuArgArgHisIleAspLeuValGlySerAlaThrLeuCysSerAlaLeuTyr
181 CGAGCTTCGACGTACATCGATCTGCTTGTGGAGCGCTACCCCTGTGTCGCCCTCTA
CGTCGAAGCTGCAGTGTAGCTAGACGAACAGCCCTCGCGATGGAGACAAGGCCGGAGAT

ValGlyAspLeuCysGlySerValPheLeu
241 CGTGGGGACTTGTGGGGTCTGTCTTCTG
GCACCCCTGAAACACGCCAGACAGAAAGAAC



FIG. 54A

1 ArgSerArgAsnLeuGlyLysValIleAspThrLeuThrCysGlyPheAlaAspLeuMet
1 AGGTCGCGCAATTGGGTAAGGTCATCGATACCCCTACGTGCGGCTTCGCCGACCTCATG
TCCAGCGCGTAAACCCATTCCAGTAGCTATGGGAATGCACGCCGAAGCGGCTGGAGTAC
61 GlyTyrIleProLeuValGlyAlaProLeuGlyGlyAlaAlaArgAlaLeuAlaHisGly
61 GGGTACATACCGCTCGTGGCGCCCTCTGGAGGCGCTGCCAGGGCCCTGGCGCATGGC
CCCATGTATGGCGAGCAGCCGGGGAGAACCTCCGCACGGTCCCAGGACCGCGTACCG
121 ValArgValLeuGluAspGlyValAsnTyrAlaThrGlyAsnLeuProGlyCysSerPhe
121 GTCCGGGTTCTGGAAGACGGCGTGAACATATGCAACAGGGAACCTCCTGGTTGCTCTTC
CAGGCCAAGACCTTCTGCCACTTGATACGTTGTCCTTGAAGGACCAACGAGAAAG
181 SerIlePheLeuLeuAlaLeuLeuSerCysLeuThrValProAlaSerAlaTyrGlnVal
181 TCTATCTCCTCTGGCCCTGCTCTTGACTGTGCCGCTTCGGCCTACCAAGTG
AGATAGAAGGAAGACCGGGACGAGAGAACGAACTGACACGGCGAAGCCGGATGGTTCAC
241 ArgAsnSerThrGlyLeuTyrHisValThrAsnAspCysProAsnSerSerIleValTyr
241 CGCAACTCCACGGGGCTTACCACTCGTACCAATGATTGCCCTAACTCGAGTATTGGTAC
GCGTTGAGGTGCCCGAAATGGTGCAGTGGTTACTAACGGGATTGAGCTATAACACATG
301 GluAlaAlaAspAlaIleLeuHisThrProGlyCysValProCysValArgGluGlyAsn
301 GAGGGGGCCGATGCCATCCTGCACACTCCGGGGTGCCTCGTCCCTGCGTTGAGGGCAAC
CTCCGCCGGCTACGGTAGGACGTGTGAGGGCCCACGCAGGGAACGCAAGCACTCCGTTG
361 AlaSerArgCysTrpValAlaMetThrProThrValAlaThrArgAspGlyLysLeuPro
361 GCCTCGAGGTGTTGGTGGCGATGACCCCTACGGTGGCCACCAGGGATGGCAAACCTCCCC
CGGAGCTCCACAACCCACCGTACTGGGGATGCCACCGTGGCTACCGTTGAGGGGG
421 AlaThrGlnLeuArgArgHisIleAspLeuLeuValGlySerAlaThrLeuCysSerAla
421 GCGACGCAGCTCGACGTCACATCGATCTGCTTGTGGAGCGCCACCCCTCTGTCGGCC
CGCTCGTCGAAGCTGCAGTAGACAACAGCCCTCGCGGTGGAGACAAGCCGG
481 LeuTyrValGlyAspLeuCysGlySerValPheLeuValGlyGlnLeuPheThrPheSer
481 CTCTACGTGGGGGACCTATGCGGGTCTGTCTTCTTGCTGGCCAACGTGTCACCTCT
GAGATGCACCCCTGGATACGCCAGACAGAAAGAACAGCCGGTTGACAAGTGGAAAGAGA
541 ProArgArgHisTrpThrThrGlnGlyCysAsnCysSerIleTyrProGlyHisIleThr
541 CCCAGGGGCCACTGGACGACGCAAGGTTGCAATTGCTCTATCTATCCCGGCCATATAACG
GGGTCCGCGGTGACCTGCTCCGTTAACGTTAACGAGATAGATAAGGGCCGGTATATTGC
601 GlyHisArgMetAlaTrpAspMetMetAsnTrpSerProThrThrAlaLeuValMet
601 GGTCAACCGCATGGCATGGGATATGATGATGAACTGGTCCCCTACGACGGCGTTGGTAATG
CCAGTGGCGTACCGTACCCCTATACTACTACTGACCAGGGATGCTGCCGCAACCATTAC

FIG. 54B

661 AlaGlnLeuLeuArgIleProGlnAlaIleLeuAspMetIleAlaGlyAlaHisTrpGly
 GCTCAGCTGCTCCGGATCCCACAAGCCATCTGGACATGATCGCTGGTGCCTACTGGGG
 CGAGTCGACGAGGCCTAGGGTGTGGTAGAACCTGTAAGCGACCACGAGTGACCCCT

 721 ValLeuAlaGlyIleAlaTyrPheSerMetValGlyAsnTrpAlaLysValLeuValVal
 GTCCCTGGCGGGCATAGCGTATTTCTCATGGTGGGAAGTGGCGAAGGCTGGTAGTG
 CAGGACCGCCCGTATCGCATAAAGAGGTACCAACCCCTGACCCGTTCCAGGACCATCAC

 781 LeuLeuLeuPheAlaGlyValAspAlaGluThrHisValThrGlyGlySerAlaGlyHis
 CTGCTGCTATTTGCCGGCGTCACGCGGAAACCCACGTACCGGGGGAAAGTGGCCGGCAC
 GACGACGATAAAACGGCCGAGCTGCGCCTTGGGTGCACTGGCCCCCTCACGGCCGGTG

 841 ThrValSerGlyPheValSerLeuLeuAlaProGlyAlaLysGlnAsnValGlnLeuIle
 ACTGTGTCTGGATTTGTTAGCCTCTCGCACCGGCCAACGAGAAGCTCAGCTGATC
 TGACACAGACCTAAACAAATCGGAGGAGCGTGGTCCGGCTCGTCTGCAGGTCGACTAG

 901 AsnThrAsnGlySerTrpHisLeuAsnSerThrAlaLeuAsnCysAsnAspSerLeuAsn
 AACACCAACGGCAGTTGGCACCTCAATAGCACGGCCCTGAACTGCAATGATAGCCTAAC
 TTGTGGTTGCCGTCAACCGTGGAGTTACGTGCCGGACTTGACGTTACTATCGGAGTT

 961 ThrGlyTrpLeuAlaGlyLeuPheTyrHisLysPheAsnSerSerGlyCysProGlu
 ACCGGCTGGTTGGCAGGGCTTTCTATCACCAAGTTCAACTCTCAGGCTGTCCCTGAG
 TGGCCGACCAACCGTCCCAGAAAGATACTGGTGTCAAGTTGAGAAAGTCCGACAGGACTC

 1021 ArgLeuAlaSerCysArgProLeuThrAspPheAspGlnGlyTrpGlyProIleSerTyr
 AGGCTAGCCAGCTGCCACCCCTTACCGATTGACCAAGGGCTGGGGCCCTATCAGTTAT
 TCCGATCGGTGACGGCTGGGAATGGCTAAACTGGTCCCACCCGGGATAGTCATA

 1081 AlaAsnGlySerGlyProAspGlnArgProTyrCysTrpHisTyrProProLysProCys
 GCAAACGGAAAGCGGCCCGACCAGCAGCCCTACTGCTGGCACTACCCCCCAGGACTTG
 CGGTTGCCCTGCCGGGCTGGTCGCGGGGATGACGACCGTGTGGGGGTTTGGAACG

 1141 GlyIleValProAlaLysSerValCysGlyProValTyrCysPheThrProSerProVal
 GGTATTGTGCCCGCGAAGAGTGTGTGTGGTCCGGTATATTGCTTCACTCCCAGCCCGTG
 CCATAACACGGGCGCTCTCACACACACCAGGCCATATAACGAAGTGAGGGTCGGGCAC

 1201 ValValGlyThrThrAspArgSerGlyAlaProThrTyrSerTrpGlyGluAsnAspThr
 GTGGGTGGGAACGACCGACAGGTGGCGCGCCACCTACAGCTGGGTGAAATGATACG
 CACCACCCCTGCTGGCTGTCCAGGCCCGCGGGGTGGATGTCGACCCCACTTTACTATGC

 1261 AspValPheValLeuAsnAsnThrArgProProLeuGlyAsnTrpPheGlyCysThrTrp
 GACGTCTCGTCTAACAAATACAGGCCACCGCTGGCAATTGGTTGGTGTACCTGG
 CTGCGAGAACGAGGAATTGTTATGGTCCGGTGGCGACCCGTTAACCAAGCCAACATGGACC

 1321 MetAsnSerThrGlyPheThrLysValCysGlyAlaProProCysValIleGlyAla
 ATGAACTCAACTGGATTACCAAGTGTGCGGAGCGCCTCTGTGTCATCGGAGGGCG
 TACTTGAGTTGACCTAAGTGGTTACACGCCCTCGCGGAGGAACACAGTAGCCTCCCCGC

 1381 GlyAsnAsnThrLeuHisCysProThrAspCysPheArgLysHisProAspAlaThrTyr
 GGCACAAACACCCCTGCACTGCCCACTGATTGCTCCGCAAGCATCCGGACGCCACATAC
 CCGTTGTTGGGACGTGACGGGGTACTAACGAAGGCGTCTGTAGGCCTGCCGTATG

 1441 SerArgCysGlySerGlyProTrpIleThrProArgCysLeuValAspTyrProTyrArg
 TCTCGGTGCGGCTCCGGCTCGGATCACACCCAGGTGCCTGGTCGACTACCCGTATAGG
 AGAGCCACGCCGAGGCCAGGGACCTAGTGTGGTCCACGGACCAGCTGATGGGCATATCC

 1501 LeuTrpHisTyrProCysThrIleAsnTyrThrIlePheLysIleArgMetTyrValGly
 CTTGGCATTATCCTTGACCATCAACTACACCATATTAAAATCAGGATGTACGTGGGA
 GAAACCGTAATAGGAACATGGTAGTTGATGTGGTATAAATTTAGTCCTACATGCACCC

 1561 GlyValGluHisArgLeuGluAlaAlaCysAsnTrpThrArgGlyGluArgCysAspLeu
 GGGGTCGAACACAGGCTGGAGGCTGCCTGCAACTGGACGCGGGGCGAACGTTGCGATCTG
 CCCCAGCTGTGTCCGACCTTCGACGGACGTTGACCTGCGCCCCGCTTGCAACGCTAGAC

 1621 GluAspArgAspArgSerGluLeuSerProLeuLeuLeuThrThrThrGlnTrpGlnVal
 GAAGACAGGGACAGGTCCGAGCTCAGCCGTTACTGCTGACCAACTACACAGTGGCAGGTC
 CTTCTGTCCCTGTCCAGGCTCGAGTCGGGCAATGACGACTGGTAGTGTCAACCGTCCAG



FIG. 54C

1681 LeuProCysSerPheThrThrLeuProAlaLeuSerThrGlyLeuIleHisLeuHisGln
 CTCGGTGTCTTCACAACCTTACCGCCTGTCACCGGGCTCATCCACCTCCACCAAG
 GAGGGACAAGGAAGTGTGGATGGTCGGAACAGGTGGCCGGAGTAGGTGGAGGTGGTC

 1741 AsnIleValAspValGlnTyrLeuTyrGlyValGlySerSerIleAlaSerTrpAlaIle
 AACATTGTGGACGTGCAGTACTTGTACGGGGTGGGGTCAAGCATCGCTCCTGGGCCATT
 TTGTAACACCTGACGTATGAACATGCCACCCAGTCAGCGCAGGACCCGGTAA

 1801 LysTrpGluTyrValValLeuLeuPheLeuLeuAlaAspAlaArgValCysSerCys
 AAGTGGGAGTACGTGTTCTCTGTTCTCTGCTTGAGACGCGCGCGTCTGCTCCTGC
 TTCACCTCATGCAGCAAGAGGAAGACGAACGAGCTGCGCGCAGACGAGGACG

 1861 LeuTrpMetMetLeuLeuIleSerGlnAlaGluAlaAlaLeuGluAsnLeuValIleLeu
 TTGTGGATGATGCTACTCATATCCAAAGCGGAGGGCGCTTGGAGAACCTCGTAATACTT
 AACACCTACTACGATGAGTATAGGGTTCGCCCTCCGCCAAACCTCTGGAGCATTATGAA

 1921 AsnAlaAlaSerLeuAlaGlyThrHisGlyLeuValSerPheLeuValPhePheCysPhe
 AATGCAGCATCCCTGGCCGGACGCACGGTCTTGTATCCTCCTCGTGTCTCTGCTTT
 TTACGTCGTAGGGACCGGCCCTGCGTGCCAGAACATAGGAAGGAGCACAAAGAACGAAA

 1981 AlaTrpTyrLeuLysGlyLysTrpValProGlyAlaValTyrThrPheTyrGlyMetTrp
 GCATGGTATTTGAAGGGTAAGTGGGTGCCCGAGCGGTCTACACCTCTACGGGATGTGG
 CGTACCATAAACTTCCCATTACCCACGGGCCCTGCCAGATGTGGAAGATGCCCTACACC

 2041 ProLeuLeuLeuLeuLeuAlaLeuProGlnArgAlaTyrAlaLeuAspThrGluVal
 CCTCTCTCTGCTCCTGTTGGCGTTGCCAGCGGGCGTACGCGCTGGACACGGAGGTG
 GGAGAGGAGGACGAGGACAACCGCAACGGGTCGCCGATGCGCAGCTGTGCCCTCCAC

 2101 AlaAlaSerCysGlyGlyValValLeuValGlyLeuMetAlaLeuThrLeuSerProTyr
 GCCGCGTCGTGTGGCGGTGTTCTCGTCGGTTGATGGCGCTGACTCTGTACCATAT
 CGCGCAGCACCCACAACAGAGCAGCCAACTACCGCGACTGAGACAGTGGTATA

 2161 TyrLysArgTyrIleSerTrpCysLeuTrpTrpLeuGlnTyrPheLeuThrArgValGlu
 TACAAGCGCTATATCAGCTGGTGTGGCTTCAGTATTTCTGACAGAGTGGAA
 ATGTTCGCGATAATGTCGACACAGAACACCACCGAAGTCATAAAAGACTGGTCTACCTT

 2221 AlaGlnLeuHisValTrpIleProProLeuAsnValArgGlyGlyArgAspAlaValIle
 GCGCAACTGCACGTGTGGATCCCCCTCAACGTCCGAGGGGGCGCAGGCCGTAC
 CGCGTTACGTGACACCTAAGGGGGGAGTTGCAGGCTCCCCCGCGCTGCCAGTAG

 2281 LeuLeuMetCysAlaValHisProThrLeuValPheAspIleThrLysLeuLeuAla
 TTACTCATGTGTGCTGTACACCCGACTCTGGTATTGACATACCAAATTGCTGCTGGCC
 AATGAGTACACACGACATGTGGGCTGAGACCATAAAACTGTAGTGGTTAACGACGCCGG

 2341 ValPheGlyProLeuTrpIleLeuGlnAlaSerLeuLeuLysValProTyrPheValArg
 GTCTCGGACCCCTTGGATTCTCAAGCCAGTTGCTAAAGTACCCCTACTTGTGCGC
 CAGAACGCTGGGAAACCTAAGAAGTTCGGTCAAACGAATTCAATGGGATGAAACACGCG

 2401 ValGlnGlyLeuLeuArgPheCysAlaLeuAlaArgLysMetIleGlyGlyHisTyrVal
 GTCCAAGGCCCTCCGGTTCTGCGCGTTAGCGCGGAAGATGATCGGAGGCCATTACGTG
 CAGGTTCCGGAAAGAGGCCAACGCGCAATCGCCCTTACTAGCCTCCGGTAATGCAC

 2461 GlnMetValIleIleLysLeuGlyAlaLeuThrGlyThrTyrValTyrAsnHisLeuThr
 CAAATGGTCATCATTAAGTTAGGGCGCTTACTGGCACCTATGTTATAACCATCTCACT
 GTTTACCACTAGTAATTCAATCCCCCGCAATGACCGTGGATACAAATATTGGTAGAGTGA

 2521 ProLeuArgAspTrpAlaHisAsnGlyLeuArgAspLeuAlaValAlaValGluProVal
 CCTCTCGGGACTGGCGCACACCGCTTGCAGATCTGGCGTGGCTGAGAGCCAGTC
 GGAGAACCCGTACCCCGCGTGTGCCAACGCTCTAGACCGGCACCGACATCTCGGTCA

 2581 ValPheSerGlnMetGluThrLysLeuIleThrTrpGlyAlaAspThrAlaAlaCysGly
 GTCTCTCCCAAATGGAGACCAAGCTCATCACGTGGGGGGCAGATAACGCCGCGTGGGT
 CAGAACAGGGTTTACCTCTGGTTGAGTAGTGCACCCCCCGTCTATGGCGGCCACGCCA

 2641 AspIleIleAsnGlyLeuProValSerAlaArgArgGlyArgGluIleLeuGlyPro
 GACATCATCAACGGCTTGCCTGTTCCGCCCGCAGGGGCCGGAGATACTGCTCGGGCA
 CTGTAGTAGTTGCCAACGGACAAAGGCAGGGCGTCCCCGGCCCTCATGACGAGCCGGT



FIG. 54D

2701 AlaAspGlyMetValSerLysGlyTrpArgLeuLeuAlaProIleThrAlaTyrAlaGln
 GCGATGGAATGGTCTCCAAGGGGTTGGAGGTTGCTGGCGCCCATCACGGCGTACGCCAG
 CGGCTACCTTACCAAGAGGTTCCCCACCTCCAACGACCGCGGGTAGTGCCGCATGCGGGTC

 2761 GlnThrArgGlyLeuLeuGlyCysIleIleThrSerLeuThrGlyArgAspLysAsnGln
 CAGACAAGGGCCTCTAGGGTGCATAATCACCAAGCCTAACTGGCCGGGACAAAAACAA
 GTCTGTTCCCCGGAGGATCCCACGTATTAGTGGTCGGATTGACCGGCCCTGTTGGTT

 2821 ValGluGlyGluValGlnIleValSerThrAlaAlaGlnThrPheLeuAlaThrCysIle
 GTGGAGGGTGAGGTCCAGATTGTGCAACTGCTGCCAAACCTTCTGGCAACGTGCATC
 CACCTCCCACTCCAGGTCTAACACAGTTGACGACGGGTTGGAAAGGACCGTTGCACGTAG

 2881 AsnGlyValCysTrpThrValTyrHisGlyAlaGlyThrArgThrIleAlaSerProLys
 AATGGGGTGTGCTGGACTGTCTACCACGGGGCCGGAACGAGGACATCGCGTCACCCAAAG
 TTACCCCACACGACCTGACAGATGGTGCCCCGGCCTGCTCCTGGTAGCGCAGTGGGTT

 2941 GlyProValIleGlnMetTyrThrAsnValAspGlnAspLeuValGlyTrpProAlaPro
 GGTCCTGTCATCCAGATGTATACCAATGTAGACCAAGACCTTGTGGGCTGGCCCGCTCCG
 CCAGGACAGTAGGTCTACATATGGTTACATCTGGTCTGGAACACCCGACCGGGCGAGGC

 3001 GlnGlySerArgSerLeuThrProCysThrCysGlySerSerAspLeuTyrLeuValThr
 CAAGGTAGCCGCTCATGGACACCCCTGCACTTGCGGCTCCTCGGACCTTACCTGGTCACG
 GTTCCATCGGCGAGTAACTGTGGGACGTAAACGCGAGGAGCCTGGAAATGGACAGTGC

 3061 ArgHisAlaAspValIleProValArgArgGlyAspSerArgGlySerLeuLeuSer
 AGGCACGCCGATGTCATTCCCGTGCAGCCGGGGGTGATAGCAGGGGCAGCCTGCTGTCG
 TCCGTGCGGCTACAGTAAGGGCACGCCGGCCGGCCACTATCGTCCCCGTGGACGACAGC

 3121 ProArgProIleSerTyrLeuLysGlySerSerGlyGlyProLeuLeuCysProAlaGly
 CCCCCGCCATTCTACTTGAAAGGCTCCTCGGGGGTCCGCTTGTGCCCCGCGGGGG
 GGGGCCGGTAAAGGATGAACTTCCGAGGAGCCCCCAGGCGACAACACGGGGCGCCCC

 3181 HisAlaValGlyIlePheArgAlaAlaValCysThrArgGlyValAlaLysAlaValAsp
 CACGCCGTGGGCATATTAAGGGCCGCGGTGTCACCCGTGGAGTGGCTAAGGCGGTGGAC
 GTGCGGCACCCGTATAATCCGGCGCACACGTGGCACCTACCGATTCCGCCACCTG

 3241 PheIleProValGluAsnLeuGluThrThrMetArgSerProValPheThrAspAsnSer
 TTTATCCCTGTGGAGAACCTAGAGACAAACCATGAGGTCCCCGGTGTTCACGGATAACTCC
 AAATAGGGACACCTCTTGATCTGTGTTGGTACTCCAGGGGCCACAAGTGCCTATTGAGG

 3301 SerProProValValProGlnSerPheGlnValAlaHisLeuHisAlaProThrGlySer
 TCTCCACCAAGTACTGCCCCAGAGCTTCCAGGGTGGCTCACCTCCATGCTCCCACAGGCAGC
 AGAGGTGGTCATCACGGGGTCTCGAAGGTCCACCGAGTGGAGGTACGAGGGTGTCCGTCG

 3361 GlyLysSerThrLysValProAlaAlaTyrAlaAlaGlnGlyTyrLysValLeuValLeu
 GGCAAAAGCACCAAGGTCCCAGGCTGCATATGCAGCTCAGGGCTATAAGGTGCTAGTACTC
 CGTTTGTGGTCCAGGGCCGACGTATACTCGAGTCCCAGTATTCCACGATCATGAG

 3421 AsnProSerValAlaAlaAlaThrLeuGlyPheGlyAlaTyrMetSerLysAlaHisGlyIle
 AACCCCTCTGTGCTGCAACACTGGGCTTGGTCTACATGTCCAAGGCTCATGGGATC
 TTGGGGAGACAACGACGTTGTGACCCGAAACACGAATGTACAGGTTCCGAGTACCCCTAG

 3481 AspProAsnIleArgThrGlyValArgThrIleThrThrGlySerProIleThrTyrSer
 GATCCTAACATCAGGACGGGGGTGAGAACAAATTACCACTGGCAGCCCCATCACGTACTCC
 CTAGGATTGTAGTCCTGGCCCCACTCTTGTAAATGGTACCGTGGGGTAGTGCATGAGG

 3541 ThrTyrGlyLysPheLeuAlaAspGlyGlyCysSerGlyGlyAlaTyrAspIleIleIle
 ACCTACGGCAAGTTCTTGCCGACGGCGGGTGCTCGGGGGCGCTTATGACATAATAATT
 TGGATGCCGTTCAAGGAACGGTGCCTGGCCACGAGCCCCCGCGAATACTGTATTATTAA

 3601 CysAspGluCysHisSerThrAspAlaThrSerIleLeuGlyIleGlyThrValLeuAsp
 TGTGACGAGTGCCACTCCACGGATGCCACATCCATCTGGGATCGGCACTGTCCCTGAC
 AACTGCTCACGGTGAGGTGCCTACGGTAGGTAGAACCGTAGCCGTGACAGGAACG



FIG. 54E

3661 GinAlaGluThrAlaGlyAlaArgLeuValValLeuAlaThrAlaThrProProGlySer
 CAAGCAGAGACTGCGGGGGGCGAGACTGGTTGTGCTGCCACCGCCACCCCTCCGGGCTCC
 GTTCGTCTCTGACCCCCCGCTCTGACCAACACGAGCGGTGGCGGTGGGGAGGCCCCGAGG

 3721 ValThrValProHisProAsnIleGluGluValAlaLeuSerThrThrGlyGluIlePro
 GTCACTGTGCCCATCCAAACATCGAGGAGGTTGCTCTGTCACCACCGGAGAGATCCCT
 CAGTGACACGGGGTAGGGTTGAGCTCTCCAAACGAGACAGGTGGTGGCCTCTAGGGA

 3781 PheTyrGlyLysAlaIleProLeuGluValIleLysGlyGlyArgHisLeuIlePheCys
 TTTTACGGCAAGGCTATCCCCCTCGAAGTAATCAAGGGGGGAGACATCTCATCTCTGT
 AAAATGCCGTTCCGATAGGGGAGCTTCATTAGTCCCCCTCTGTAGAGTAGAAAGACA

 3841 HisSerLysLysLysCysAspGluLeuAlaAlaLysLeuValAlaLeuGlyIleAsnAla
 CATTCAAAGAAGAAGTGCAGAAGTGCAGCCTGCGCAAAGCTGGTCGATTGGGCATCAATGCC
 GTAAGTTTCTTCTCACGCTGCTTGAGCGCGTTCGACCAGCGTAACCCGTAGTTACGG

 3901 ValAlaTyrTyrArgGlyLeuAspValSerValIleProThrSerGlyAspValValVal
 GTGGCCTACTACCGGGTCTTGACGTGTCGTACCGGCTATACCGGCGACTTCGACTCGGTGATGTTGTCGTC
 CACCGGATGATGGCGCCAGAACGTGACAGGCACTGGCTGGTCGCCGCTACAACAGCAG

 3961 ValAlaThrAspAlaLeuMetThrGlyTyrThrGlyAspPheAspSerValIleAspCys
 GTGGCAACCGATGCCCTCATGACCGGCTATACCGGCGACTTCGACTCGGTGATAGACTGC
 CACCGTTGGCTACGGGAGTACTGGCCGATATGGCCGCTGAAGCTGAGCCACTATCTGACG

 4021 AsnThrCysValThrGlnThrValAspPheSerLeuAspProThrPheThrIleGluThr
 AATACGTGTGTCACCCAGACAGTCGATTTCAGCCTGACCCCTACCTCACCCATTGAGACA
 TTATGCACACAGTGGGTCTGTCAGCTAAAGTCGGAACTGGGATGGAAGTGGTAACCTGT

 4081 IleThrLeuProGlnAspAlaValSerArgThrGlnArgArgGlyArgThrGlyArgGly
 ATCACGCTCCCCCAGGGATGCTCTCCCGCACTCAACGTCGGGGCAGGACTGGCAGGGGG
 TAGTGCAGGGGGTCTACGACAGAGGGCGTGAGTTGCAGCCCCGCTCTGACCGTCCCCC

 4141 LysProGlyIleTyrArgPheValAlaProGlyGluArgProSerGlyMetPheAspSer
 AAGCCAGGCATCTACAGATTGTGGCACCGGGGGAGCGCCCCCTCCGGCATGTTGACTCG
 TTGGTCCGTAGATGCTAAACACCGTGGCCCCCTCGCGGGAGGCCGTACAAGCTGAGC

 4201 SerValLeuCysGluCysTyrAspAlaGlyCysAlaTrpTyrGluLeuThrProAlaGlu
 TCCGTCCCTGTGAGTGCTATGACGCAGGCTGTGCTTGGTATGAGCTCACGCCGCGAG
 AGGCAGGAGACACTCACGATACTGCGTCCGACACGAACCATACTGAGTGCAGGGCGGCTC

 4261 ThrThrValArgLeuArgAlaTyrMetAsnThrProGlyLeuProValCysGlnAspHis
 ACTACAGTTAGGCTACGAGCGTACATGAACACCCGGGGCTTCCGTGTGCCAGGACCAT
 TGATGTCAATCCGATGCTCGCATGTACTGTGGGGCCCCGAAGGGCACACGGTCTGGTA

 4321 LeuGluPheTrpGluGlyValPheThrGlyLeuThrHisIleAspAlaHisPheLeuSer
 CTTGAATTTGGGAGGGCGTCTTACAGGCCTCACTCATATAGATGCCACTTCTATCC
 GAACTTAAACCCCTCCCGCAGAAATGTCGGAGTGAATATCTACGGGTGAAAGATAGG

 4381 GlnThrLysGlnSerGlyGluAsnLeuProTyrLeuValAlaTyrGlnAlaThrValCys
 CAGACAAAGCAGAGTGGGAGAACCTTCTTACCTGGTAGCGTACCAAGCCACCGTGTGC
 GTCTGTTCTGTCACCCCTTGGAAAGGAATGGACCATCGCATGGTTCGGTGGCACACG

 4441 AlaArgAlaGlnAlaProProSerTrpAspGlnMetTrpLysCysLeuIleArgLeu
 GCTAGGGCTCAAGCCCCTCCCCCATGTTGGGACCAGATGTGGAAGTGTGATTGCCCTC
 CGATCCCAGTTGGGGAGGGGGTAGCACCCTGGTACACCTTACAAACTAACGGGAG

 4501 LysProThrLeuHisGlyProThrProLeuLeuTyrArgLeuGlyAlaValGlnAsnGlu
 AAGCCCACCCCTCCATGGGCAACACCCCTGCTATACAGACTGGCGCTGTTAGAATGAA
 TTCGGGTGGGAGGTACCCGGTTGTGGGGACGATATGTCTGACCCCGCAGAACAGTCTACTT

 4561 IleThrLeuThrHisProValThrLysTyrIleMetThrCysMetSerAlaAspLeuGlu
 ATCACCCCTGACGCACCCAGTCACCAAATACATCATGACATGCACTGTCGGCCGACCTGGAG
 TAGTGGGACTGCGTGGTCAGTGGTTATGTAGTACTGTACGTACAGCCGGCTGGACCTC

 4621 ValValThrSerThrTrpValLeuValGlyGlyValLeuAlaAlaLeuAlaAlaTyrCys
 GTCGTACGAGCACCTGGGTGCTCGTTGGCGCGTCTGGCTGCTTGGCCGCGTATTG
 CAGCAGTGTGGACCCACGAGCAACCGCCGAGGACCGACGAAACCGGGCGATAACG



FIG. 54F

4681 LeuSerThrGlyCysValValIleValGlyArgValValLeuSerGlyLysProAlaIle
 CTGTCAACAGGCTGCGTGGTCATAGTGGCAGGGTCGTCTGTCGGGAAGCCGGCAATC
 GACAGTTGTCGACGCACCAAGTATCACCCGTCAGCAGAACAGGCCCTCGGCCGTTAG

 4741 IleProAspArgGluValLeuTyrArgGluPheAspGluMetGluGluCysSerGlnHis
 ATACCTGACAGGGAAAGTCCTCTACCGAGAGTCGATGAGATGGAAGAGTGCTCTCAGCAC
 TATGGACTGTCCCTTCAGGAGATGGCTCTCAAGCTACTCACCTCTCACGAGAGTCGTG

 4801 LeuProTyrIleGluGlnGlyMetMetLeuAlaGluGlnPheLysGlnLysAlaLeuGly
 TTACCGTACATCGAGCAAGGGATGATGCTCGCCGAGCAGTTCAAGCAGAACGGCCCTCGGC
 AATGGCATGTAGCTCGTCCCTACTACGAGCGGCTCGTCAAGTTCGTCTCCGGAGCCG

 4861 LeuLeuGlnThrAlaSerArgGlnAlaGluValIleAlaProAlaValGlnThrAspTrp
 CTCTCGAGACCGCGTCCCGTCAGGCAGAGGTTATCGCCCTGCTGTCCAGACCAACTGG
 GAGGACGTCTGGCGCAGGGCAGTCCGTCCAATAGCAGGGACGACAGGTCTGGTTGACC

 4921 GlnLysLeuGluThrPheTrpAlaLysHisMetTrpAsnPheIleSerGlyIleGlnTyr
 CAAAAAACTCGAGACCTCTGGGCGAAGCATATGTGGAACCTCATCAGTGGGATAACAATAC
 GTTTTGAGCTCTGGAAGACCCGCTTCGTATACACCTGAAGTAGTCACCCATATGTTATG

 4981 LeuAlaGlyLeuSerThrLeuProGlyAsnProAlaIleAlaSerLeuMetAlaPheThr
 TTGGCGGGCTTGTCAACGCTGCCGTGGTAACCCGCCATTGCTTCATTGATGGCTTTACA
 AACCGCCCGAACAGTTGCGACGGACCATGGGGCGTAACGAAGTAACTACCGAAAATGT

 5041 AlaAlaValThrSerProLeuThrThrSerGlnThrLeuLeuPheAsnIleLeuGlyGly
 GCTGCTGTCACCAGCCCCTAACCAACTAGCCAAACCTCCTCTAACATATTGGGGGGGG
 CGACGACAGTGGTCGGGTGATTGGTGATGGTTGGGAGGAGAAGTTGATAAACCCCCCCC

 5101 TrpValAlaAlaGlnLeuAlaAlaProGlyAlaAlaThrAlaPheValGlyAlaGlyLeu
 TGGGTGGCTGCCAGCTCGCCGCCGGTGGCGCTACTGCCCTTGTGGCGCTGGCTTA
 ACCCACCGACGGGTCGAGCGGGGGGCCACGGCGATGACGAAACACCCGCGACCGAAT

 5161 AlaGlyAlaAlaIleGlySerValGlyLeuGlyLysValLeuIleAspIleLeuAlaGly
 GCTGGCGCCGCCATCGGCAGTGGACTGGGAAGGTCTCATAGACATCCTGCAAGGG
 CGACCGCGCGGTAGCCGTACAACCTGACCCCTTCCAGGAGTATCTGTAGAACGTC

 5221 TyrGlyAlaGlyValAlaGlyAlaLeuValAlaPheLysIleMetSerGlyGluValPro
 TATGGCGGGCGTGGCGGGAGCTTGTGGCATTCAAGATCATGAGCGGTGAGGTCCCC
 ATACCGCCTCGACCGCCCTCGAGAACACCGTAAGTTCTAGTACTGCCACTCCAGGGG

 5281 SerThrGluAspLeuValAsnLeuLeuProAlaIleLeuSerProGlyAlaLeuValVal
 TCCACGGAGGACCTGGTCAACTACTGCCGCCATCTCTGCCGGAGCCCTCGTAGTC
 AGGTGCCTCTGGACCAAGTTAGATGACGGCGGTAGGAGAGCGGGCCTGGGAGCATCAG

 5341 GlyValValCysAlaAlaIleLeuArgARgHisValGlyProGlyGluGlyAlaValGln
 GGCCTGGCTGTGCAGCAATACTGCGCCGGCACGGTGGCCGGCAGGGGGCAGTGCAG
 CGCACCAAGACACGTCGTTATGACGCGGGCGTGCACCGGGCCGCTCCCCGTACGTC

 5401 TrpMetAsnArgLeuIleAlaPheAlaSerArgGlyAsnHisValSerProThrHisTyr
 TGGATGAACCGGCTGATAGCCTTCGCCTCCGGGGGAACCATGTTCCCCCACGCACTAC
 ACCTACTGGCCGACTATCGGAAGCGGGAGGGCCCCCTGGTACAAAGGGGTGCGTGATG

 5461 ValProGluSerAspAlaAlaAlaArgValThrAlaIleLeuSerSerLeuThrValThr
 GTGCCGGAGAGCGATGCAGCTGCCGCTACTGCCATACTCAGCAGCCTCACTGTAAAC
 CACGGCCTCTCGCTACGTCACGGCGCAGTGACGGTATGAGTCGTCGGAGTGACATTGG

 5521 GlnLeuLeuArgArgLeuHisGlnTrpIleSerSerGluCysThrThrProCysSerGly
 CAGCTCCTGAGGCAGCTGCACCAAGTGGATAAGCTGGAGTGTACCACTCCATGCTCCGGT
 GTCGAGGACTCCGCTGACGTGGTACCTATTGAGCCTCACATGGTGAGGTACGAGGCCA

 5581 SerTrpLeuArgAspIleTrpAspTrpIleCysGluValLeuSerAspPheLysThrTrp
 TCCTGGCTAAGGGACATCTGGGACTGGATATGCGAGGTGTTGAGCGACTTTAACACTGG
 AGGACCGATTCCCTGTAGACCTATACGCTCCACAACCTCGCTGAAATTCTGGACC

 5641 LeuLysAlaLysLeuMetProGlnLeuProGlyIleProPheValSerCysGlnArgGly
 CTAAGCTAAGCTCATGCCACAGCTGCTGGATCCCTTGTGCTCTGCCAGCGCGGG
 GATTTTCGATTGAGTACGGTGTGACGGACCCCTAGGGGAAACACAGGACGGTCGCGCCC



FIG. 54G

5701 TyrLysGlyValTrpArgValAspGlyIleMetHisThrArgCysHisCysGlyAlaGlu
 TATAAGGGGGTCTGGCGAGTGGACGGCATCATGCACACTCGCTGCCACTGTGGAGCTGAG
 ATATTCCCCAGACCGCTCACCTGCCGTAGTACGTGTAGCAGCAGGTGACACCTCGACTC

 5761 IleThrGlyHisValLysAsnGlyThrMetArgIleValGlyPROArgThrCysArgAsn
 ATCACTGGACATGTCAAAAACGGGACGATGAGGATCGTCGGTCTAGGACCTGCAGGAAC
 TAGTGACCTGTACAGTTTGCCTGCTACTCCTAGCAGCCAGGATCTGGACGTCCCTG

 5821 MetTrpSerGlyThrPheProIleAsnAlaTyrThrThrGlyProCysThrProLeuPro
 ATGTGGAGTGGGACCTTCCCATTAAATGCTACACCAACGGGCCCCTGTACCCCCCTTCCT
 TACACCTCACCCCTGGAAAGGGGTAATTACGGATGTGGTCCCAGGGACATGGGGGAAGGA

 5881 AlaProAsnTyrThrPheAlaLeuTrpArgValSerAlaGluGluTyrValGluIleArg
 GCGCCGAACATACACGTTCGCCTATGGAGGGTGTCTGCAGAGGAATATGTGGAGATAAGG
 CGCGGCTTGATGTGCAAGCGCGATACCTCCCACAGACGTCTCCATTACACCTCTATTCC

 5941 GlnValGlyAspPheHisTyrValThrGlyMetThrThrAspAsnLeuLysCysProCys
 CAGGTGGGGACTTCCACTACGTGACGGGTATGACTACTGACAATCTAAATGCCGTGC
 GTCCACCCCCCTGAAGGTGATGCACTGCCATACTGATGACTGTTAGAGTTACGGCACG

 6001 GlnValProSerProGluPhePheThrGluLeuAspGlyValArgLeuHisArgPheAla
 CAGGTCCCCTCGCCCGAATTTCACAGAATTGGACGGGGTGCCTACATAGGTTGCG
 GTCCAGGGTAGCGGGCTAAAAAGTGTCTAACCTGCCAACGCGGATGTATCAAACGC

 6061 ProProCysLysProLeuLeuArgGluGluValSerPheArgValGlyLeuHisGluTyr
 CCCCCCTGCAAGCCCTGCTGCGGGAGGGAGGTATCATTAGAGTAGGACTCCACGAATAC
 GGGGGGACGTTGGGAAACGACGCCCTCCATAGTAAGTCTCATCCGTAGGTGTTATG

 6121 ProValGlySerGlnLeuProCysGluProGluProAspValAlaValLeuThrSerMet
 CCGGTAGGGTCGCAATTACCTTGCAGGCCCGAACCGGACGTGGCGTGTGACGTCCATG
 GCCATCCCAGCGTTAACGGCTCGGGCTGGCCTGCACCCGGCACAACTGCAAGGTAC

 6181 LeuThrAspProSerHisIleThrAlaGluAlaAlaGlyArgArgLeuAlaArgGlySer
 CTCACTGATCCCCTCCCATATAAACAGCAGAGGGCGGGCGAAGGGTTGGCGAGGGGATCA
 GAGTGAATAGGGAGGTATATTGTCGTCTCGCCGGCGCTTCAACCGCTCCCTAGT

 6241 ProProSerValAlaSerSerAlaSerGlnLeuSerAlaProSerLeuLysAlaThr
 CCCCCCTGTTGGCCAGCTCTGGCTAGCCAGCTATCCGCTCCATCTCTCAAGGCAACT
 GGGGGGAGACACCGGTCGAGGAGCCGATGGTCGATAGGCAGGGTAGAGAGTTCCGTTGA

 6301 CysThrAlaAsnHisAspSerProAspAlaGluLeuIleGluAlaAsnLeuLeuTrpArg
 TGACCGCTAACCATGACTCCCTGATGCTGAGCTCATAGAGGCCAACCTCTATGGAGG
 ACGTGGCGATTGGTACTGAGGGACTACGACTCGAGTATCTCCGGTTGGAGGATACCTCC

 6361 GlnGluMetGlyGlyAsnIleThrArgValGluSerGluAsnLysValValIleLeuAsp
 CAGGAGATGGGCGGCAACATACCCAGGGTTGAGTCAGAAAACAAAGTGGTATTCTGGAC
 GTCTCTACCCGCCGTTGAGTGGTCCAACTCAGTCTTTGTTCAACCAACTAACCTG

 6421 SerPheAspProLeuValAlaGluGluAspGluArgGluIleSerValProAlaGluIle
 TCCCTCGATCCGTTGTGGCGAGGGAGGACGAGCGGGAGATCTCCGTACCCGCAGAAATC
 AGGAAGCTAGGCGAACACCGCCTCCCTGCTGCCCTCTAGAGGGCATGGCGTCTTAG

 6481 LeuArgLysSerArgArgPheAlaGlnAlaLeuProValTrpAlaArgProAspTyrAsn
 CTGCGGAAGTCTCGGAGATTGCCAGGCCCTGCCGTTGGCGCGCCGGACTATAAC
 GACGCCCTCAGAGCCTTAAGCGGGTCCGGGACGGGAAACCCGCGCCGGCTGATATTG

 6541 ProProLeuValGluThrTrpLysLysProAspTyrGluProProValValHisGlyCys
 CCCCCGCTAGTGGAGACGTGGAAAAAGCCGACTACGAACCACTGTGGTCCATGGCTGT
 GGGGGCGATCACCTCTGCACCTTTGGCTGATGCTTGGTGACACCAGGTACCGACA

 6601 ProLeuProProLysSerProProValProProProArgLysLysArgThrValVal
 CCGCTTCCACCTCAAAGTCCCTCCTGTCGCTCCGCCCTGGAAAGAAGCGGACGGTGGTC
 GGCGAAGGTGGAGGTTCAAGGGGAGGACACGGAGGCGGAGCCTTCCGCCCTGCCACCA

 6661 LeuThrGluSerThrLeuSerThrAlaLeuAlaGluLeuAlaThrArgSerPheGlySer
 CTCACTGAATCAACCTATCTACTGCCCTGGCCGAGCTGCCACCCAGAAGCTTGGCAGC
 GAGTGACTTAGTTGGGATAGATGACGGAACCGGCTCGAGCGGTGGTCTCGAAACCGTCG



FIG. 54H

SerSerThrSerGlyIleThrGlyAspAsnThrThrSerSerGluProAlaProSer
 6721 TCCTCAACTCCGGCATTACGGGCGACAATACGACAAACATCCTCTGAGCCGCCCCCTCT
 AGGAGTTGAAGGCCGTAATGCCCGTGTATGCTGTTAGGAGACTCGGGCGGGGAAAGA
 GlyCysProProAspSerAspAlaGluSerTyrSerSerMetProProLeuGluGlyGlu
 6781 GGCTGCCCCCCCCGACTCCGACGCTGAGTCCTATTCCATGCCCTGGAGGGGGAG
 CCGACGGGGGGCTGAGGCTGCGACTCAGGATAAGGAGGTACGGGGGGGACCTCCCCCTC
 ProGlyAspProAspLeuSerAspGlySerTrpSerThrValSerSerGluAlaAsnAla
 6841 CCTGGGGATCCGGATCTTAGCAGCGGTCATGGTCAACGGTCAGTAGTGAGGCCAACGCG
 GGACCCCTAGGCCTAGAACATGCTGCCAGTACCAAGTGCAGTCATCACTCCGGTTGCGC
 GluAspValValCysCysSerMetSerTyrSerTrpThrGlyAlaLeuValThrProCys
 6901 GAGGATGTCGTGCTGCTCAATGTCTTACTCTGGACAGGCGCACTCGTCACCCCGTGC
 CTCCTACAGCACACGACGAGTTACAGAATGAGAACCTGTCGCGTGAGCAGTGGGGCACG
 AlaAlaGluGluGlnLysLeuProIleAsnAlaLeuSerAsnSerLeuLeuArgHisHis
 6961 GCCGCGGAAGAACAGAAACTGCCATCAATGCACTAAGCAACTCGTGCTACGTACCCAC
 CGGCGCCTCTTGTCTTGACGGTAGTTACGTGATTGAGCAACGATGCACTGGT
 AsnLeuValTyrSerThrThrSerArgSerAlaCysGlnArgGlnLysLysValThrPhe
 7021 AATTGGTGTATTCCACCACTCACGAGCTGCTGCTGCAAAAGGCAGAAGAACAGTCACATT
 TTAAACCACATAAGGTGGTGGAGTGCACGAGCTGATTGAGCAACGATGCACTGGTAAA
 AspARgLeuGlnValLeuAspSerHisTyrGlnAspValLeuLysGluValLysAlaAla
 7081 GACAGACTGCAAGTTCTGGACAGCATTACCAAGGAGCTACTCAAGGAGGTTAAAGCAGCG
 CTGTCTGACGTTCAAGACCTGTCGGAATGGCCTGCACTGAGTTCCCTCCAATTTCGTCGC
 AlaSerLysValLysAlaAsnLeuLeuSerValGluGluAlaCysSerLeuThrProPro
 7141 GCGTCAAAAGTGAAGGCTAACCTGCTATCGTAGAGGAAGCTTGAGCCCTGACGCC
 CGCAGTTTCACTCCGATTGAACGATAGGCATCTCCTCGAACGTCGGACTGCGGGGGT
 HisSerAlaLysSerLysPheGlyTyrGlyAlaLysAspValArgCysHisAlaArgLys
 7201 CACTCAGCCAAATCCAAGTTGGTTATGGGGCAAAAGACGTCGTTGCCATGCCAGAAAG
 GTGAGTCGGTTAGGTTCAAACCAATACCCGTTCTGCAAGGCAACGGTACGGTCTTC
 AlaValThrHisIleAsnSerValTrpLysAspLeuLeuGluAspAsnValThrProIle
 7261 GCCGTAACCCACATCAACTCCGTGTTGGAAAGACCTCTGGAAAGACAATGTAACACCAATA
 CGGCATTGGGTGAGTTGAGGCACACCTTCTGGAAAGACCTCTGTTACATTGTGGTTAT
 AspThrThrIleMetAlaLysAsnGluValPheCysValGlnProGluLysGlyGlyArg
 7321 GACACTACCATCATGGCTAACGAGGTTTCTGCGTTAGCCTGAGAAGGGGGTCGT
 CTGTATGGTAGTACCGATTCTGCTCCAAAGACGCAAGTCGGACTCTCCCCCAGCA
 LysProAlaArgLeuIleValPheProAspLeuGlyValArgValCysGluLysMetAla
 7381 AAGCCAGCTCGTCTCATCGTGTCCCGATCTGGCGTGCAGCAGGAAAGATGGCT
 TICGGTCGAGCAGAGTAGCACAAGGGGCTAGACCCGACCGCGCACACGCTTTCTACCGA
 LeuTyrAspValValThrLysLeuProLeuAlaValMetGlySerSerTyrGlyPheGln
 7441 TTGTACGAGTGGTTACAAAGCTCCCTGGCGTGTGGAAAGCTCTACGGATTCAA
 AACATGCTGACCAATGTTGAGGGAAACCGGCACCTCGAGGATGCCTAAGGTT
 TyrSerProGlyGlnArgValGluPheLeuValGlnAlaTrpLysSerLysThrPro
 7501 TACTCACCAGGACAGCGGGTTGAATTCTCGTGCAAGCGTGGAAAGTCAAGAAAACCCA
 ATGAGTGGCCTGTCGCCAACCTAAGGAGCACGTTGCACTTCAGGTTTTGGGTT
 MetGlyPheSerTyrAspThrArgCysPheAspSerThrValThrGluSerAspIleArg
 7561 ATGGGGTTCTCGTATGATAACCGCTGCTTGAAGTCCACAGTCAGTGAGAGCGACATCCGT
 TACCCCAAGAGCATACTATGGGCGACGAAACTGAGGTGTCAGTGAATCTCGCTGAGGCA
 ThrGluGluAlaIleTyrGlnCysCysAspLeuAspProGlnAlaArgValAlaIleLys
 7621 ACGGAGGAGGCAATCTACCAATGTTGACCTCGACCCCCAAGCCGCGTGGCCATCAAG
 TGCCTCCTCCGTTAGATGGTTACAACACTGGAGCTGGGGTTGGGGCGCACCGGTAGTTC
 SerLeuThrGluArgLeuTyrValGlyGlyProLeuThrAsnSerArgGlyGluAsnCys
 7681 TCCCTCACCGAGAGGCTTATGTTGGGGCCCTTACCAATTCAAGGGGGAGAACTGC
 AGGGAGTGGCTCTCCGAAATACAACCCCGGGAGAATGGTTAAGTCCCCCTTGACG



FIG. 54I

7741 GlyTyrArgArgCysArgAlaSerGlyValLeuThrThrSerCysGlyAsnThrLeuThr
GGCTATCGCAGGTGCCGCGCAGCGCGTACTGACAACTAGCTGTGGTAACACCCCTCACT
CCGATAGCGTCCACGGCGCGCTGCCGCATGACTGTTGATCGACACCATTGTGGGAGTGA

7801 CysTyrIleLysAlaArgAlaAlaCysArgAlaAlaGlyLeuGlnAspCysThrMetLeu
TGCTACATCAAGGCCGGCAGCCTGTCGAGCCGCAGGGCTCCAGGACTGCACCATGCTC
ACGATGTAGTTCCGGGCCGTCGGACAGCTCGCGTCCCAGGTCTGACGTGGTACGAG

7861 ValCysGlyAspAspLeuValValIleCysGluSerAlaGlyValGlnGluAspAlaAla
GTGTGTGGCGACGACTTAGTCGTTATCTGTGAAAGCGCGGGGTCCAGGAGGACGCGGCG
CACACACCGCTGCTGAATCAGCAATAGACACTTCGCGCCCCAGGTCTCCTGCGCCGC

7921 SerLeuArgAlaPheThrGluAlaMetThrArgTyrSerAlaProProGlyAspProPro
AGCCTGAGAGCCTTCACGGAGGCTATGACCAGGTACTCCGCCCCCCTGGGGACCCCCCA
TCGGACTCTCGGAAGTGCCTCCGATACTGGTCCATGAGGCGGGGGGACCCCTGGGGGGT

7981 GlnProGluTyrAspLeuGluLeuIleThrSerCysSerSerAsnValSerValAlaHis
CAACCAGAATACGACTTGGAGCTCATAACATCATGCTCCTCCAACGTGTAGTCAGCGCCCAC
GTTGGTCTTATGCTGAACCTCGAGTATTGTAGTACGAGGAGGTTGCACAGTCAGCGGGTG

8041 AspGlyAlaGlyLysArgValTyrTyrLeuThrArgAspProThrThrProLeuAlaArg
GACGGCGCTGGAAAGAGGGTCTACTACCTCACCCGTGACCCTACAAACCCCCCTCGCGAGA
CTGCCCGACCTTCTCCAGATGATGGAGTGGCACTGGGATGTTGGGGAGCGCTCT

8101 AlaAlaTrpGluThrAlaArgHisThrProValAsnSerTrpLeuGlyAsnIleIleMet
GCTGCCTGGGAGACAGCAAGACACACTCCAGTCAATTCTGGCTAGGCAACATAATCATG
CGACGCACCCCTGTCGTTCTGTGAGGTCAGTTAAGGACCGATCCGTTGTATTAGTAC

8161 PheAlaProThrLeuTrpAlaArgMetIleLeuMetThrHisPhePheSerValLeuIle
TTTGCCTTCAACTGTGGCGAGGATGATACTGATGACCCATTCTTACGTCCTTATA
AAACGGGGGTGTGACACCCGCTCTACTATGACTACTGGTAAAGAAATCGCAGGAATAT

8221 AlaArgAspGlnLeuGluGlnAlaLeuAspCysGluIleTyrGlyAlaCysTyrSerIle
GCCAGGGACCAGCTTGAACAGGCCCTCGATTGCGAGATCTACGGGGCTGCTACTCCATA
CGGTCCCTGGTCGAACCTGTCCGGAGCTAACGCTCTAGATGCCCGGACGATGAGGTAT

8281 GluProLeuAspLeuProProIleIleGlnArgLeu
GAACCACTTGATCTACCTCCAATCATTCAAAGACTC
CTTGGTGAACTAGATGGAGGTTAGTAAGTTCTGAG



FIG. 55A

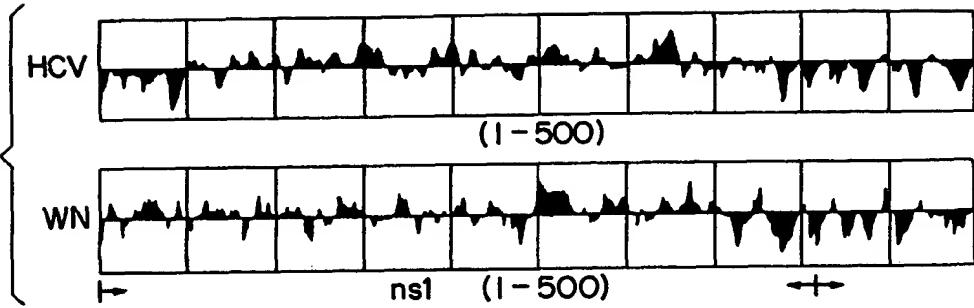


FIG. 55B

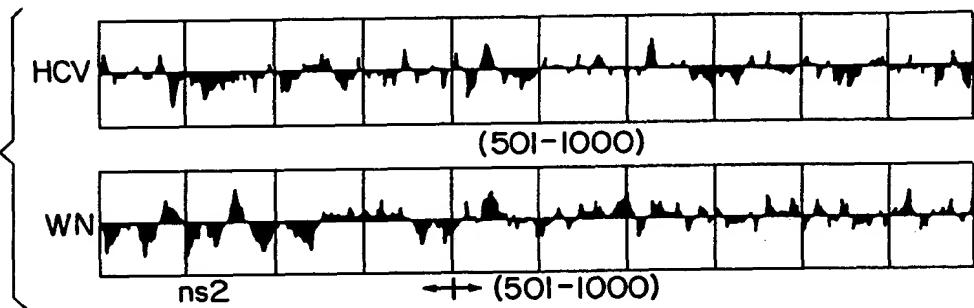


FIG. 55C

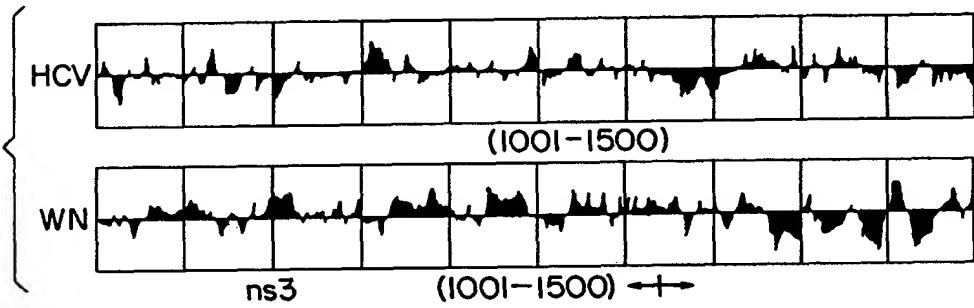


FIG. 55D

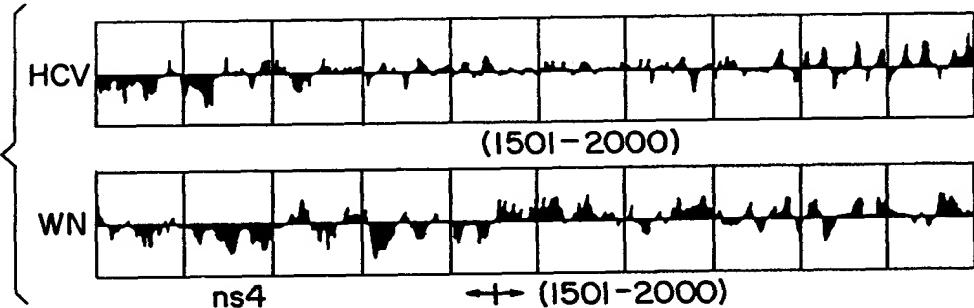


FIG. 55E

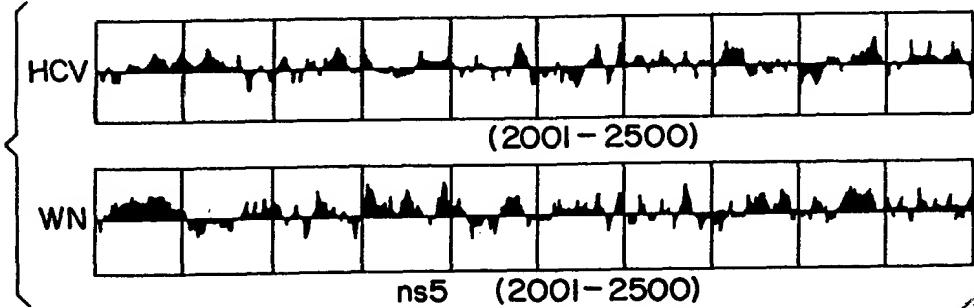


FIG. 56

1	ArgArgSerArgAsnLeuGlyLysValIleAspThrLeuThrCysGlyPheAlaAsp CCCGGGTAGGTCGGCAAATTGGTAAAGGTCAATCGATACCCCTAACGTTACGGGGCTTCGGCG GGCCGCATCCAGGGTTAACCCATTCCAGTAGCTATGGAAATGCCAACGCCAAGGGCG	LeuMetGlyTyrIleProLeuValGlyAlaProLeuGlyIYAlaAlaArgAlaLeuAla ACCTCATGGGTACATACCGCTCGGGCCCTCTGGAGGGCTGCCAGGGCCCTGG TGGAGTACCCCATGTATGGCAGGCCAGGGAGAACCTCCGGACGGTCCGGACC HisGlyValArgValleuGluAspGlyValAsnTyValThrGlyValnLeuProGlyCys CGCATGGCGTCCGGTTCTGGAAAGACGGCTGAACATGCAACAGGAACCTTCCTGGTT GCGTACCGCAGGCCAAGACCTCTGCCGCACITGATACTGTTGGAAAGGACCAA
61	SerPheSerIlePheLeuAlaLeuLeuSerCysLeuThrValProAlaSerAlaTyr GCTCTTCTATCTCCCTGCCCCTGCTCTGCTTGTGACTGTGCCCTTGAAAGGCCCT CGAGAAAGAGATAGAAGGAAGACCGGGAGAGAACGAAACTGACACGGCGAAGGGGA	
121	GlnValArgAsnSerThrGlyLeuTyrrhIsValThrAsnAspCysProAsnSerSerIle ACCAAGTGGCAACTCCACGGGCTTACCACTGCACTGCCAACATTGCTCCCTAACCTCGAGTA TGGTCACGGTTGAGGTGCCCGAAATGGTGCAGTGGTTACTAACGGGATTGAGCTCAT	
181	ValTyrGluAlaAlaAspAlaIleLeuHisThrProGlyCysValProCysValArgGlu TTGTGTACGAAGGGCGATGCCATCCTGCACACTCCGGGTGGCATTGCGTTCGTTG AACACATGCTTCGGGGCTACGGTAGGGACGTGTGAGGGCAACGGCAAGGCCACGG	
241	GlnValArgAsnSerThrGlyLeuTyrrhIsValThrAsnAspCysProAsnSerSerIle ACCAAGTGGCAACTCCACGGGCTTACCACTGCACTGCCAACATTGCTCCCTAACCTCGAGTA TGGTCACGGTTGAGGTGCCCGAAATGGTGCAGTGGTTACTAACGGGATTGAGCTCAT overlap with CA167b	
301	ValTyrGluAlaAlaAspAlaIleLeuHisThrProThrValAla TTGTGTACGAAGGGCGATGCCATCCTGCACACTCCGGGTGGCATTGCGTTCGTTG AACACATGCTTCGGGGCTACGGTAGGGACGTGTGAGGGCAACGGCAAGGCCACGG	
361	GlyAsnAlaSerArgCysTrpValAlaMetThrProThrValAla AGGGCAACGGCCTCGAGGTGGTGGCATTGACCCCTACGGTGGCC TCCCCTGGGAGCTCCACAACCCACGGCTACTGGGGATGCCACGG	





1	LysLysAsnLysArgAsnThrAsnArgArgProGlnAspPheProGlyGlyGly	
61	TTTTTTTGTGTTGCATGTGGTTGCCAGGGGTCTGCAGTCAAGGGCCACCGC	
121	GlnIleValGlyGlyIleValTyrLeuLeuProArgArgGlyProArgIleGlyValArgAla	
181	CGACGAGAAAGACTTCCGAGCGGTGCAACCTCGAGGTTAGACGCCAGCCTATCCCCAAGG	
241	ArgArgProGluArgGlyArgGlnProArgGlyTyrProTrpProLeuTyrGlyAsn	
301	CTCGTCGGCCGAGGGCAGGACTGGGCTCAGCCGGTACCCCTGGCCCTCATGGCA	
361	GAGCAGCCGGCTCCCGCTCGACCCGAGTCGGCCCATGGGAACCGGGGAGATAACCGT	
421	GlUGlyCysGlyTrpAlaGlyTrpAlaGlyTrpLeuSerProArgGlySerArgProSerTrpGly	
	ATGAGGGCTGGGGGGATGGCTCCTGTCAGCCGGCTCTCGGCCTAGCTGGG	
	TACTCCGACCCCCACCGCCCTACCGGAGGACAGAGGGCACCGAGGAGGCCGATCGACCC	

	ProThrAspProArgArgGlySerArgAsnLeuGlyLysValIleAspPheThrLeuThrCys	
	GGCCACAGACCCCCGGCTAGGTCTGCCAATTGGTAAGGTCTCGATAACCTTACGT	
	CGGGGTGTCGGGGCCGCATCCAGGGTTAACCCATTCAGCTATGGGAATGCA	

	GlyPheAlaAspLeuMetGlyTyrIleProLeuValGlyAlaProLeuGlyGlyAlaAla	
	GCGGCTTCGCCCCACCTCATGGGTACATACCGCTCGCGGCCCTCTGGAGGCCGCTG	
	CGCCGAAGGGCTGGAGGTACCCATGTGATGGCGAGCAGCCGGGGAGAACCTCCGGCAG	

	ArgAlaLeuAlaHisGlyValArgValLeuGluAspGlyIleValAsnTyralaThrGlyAsn	
	GGTCCCCGGGACCGCGTACCGCAGGCCAACAGACCTTCTGCCGACTTGTGTCCT	

	LeuProGlyCysSerPheSerThrPhe	
481	ACCTTCCTGGTTGCTCTTCTACCTTC	
	TGGAAAGGACCAACGAGAAAGAGATGGAAG	

FIG. 57

FIG. 58A

#MetSerValValGlnProProGlyProLeu

1 CGCAGAAAGCCTAGCCATGGCGTTAGTATGAGTGTGTCGTCAGCCTCCAGGACCCCC
GCGTCTTCGCAGATCGGTACCGCAATCATACTCACAGCACGTCGGAGGTCTGGGGGG

ProGlyGluProAM

#MetAlaLeuValOP

61 TCCCCGGAGGCCATAGTGGTCTGGGAACCGGTGAGTACACCGGAATTGCCAGGACGAC
AGGGCCCTCTCGGTATCACCAAGACGCCATTGGCCACTCATGTGGCTTAACGGTCTGCTG

#MetProGlyAspLeuGlyValProProGlnAsp

121 CGGGTCCCTTCTGGATCAACCCGCTCAATGCCCTGGAGATTGGGGTGGCCCGCAAGA
GCCAGGAAAGAACCTAGTTGGCGAGTTACGGACCTCTAACCCGCCACGGGGCGTTCT

OP AM GLYAlaCys
*
CYSAM

181 CTGCTAGCCGAGTAGTGTGGGTGGCGAAAGGCCTTGGTACTGCCCTGATAGGGTGCCTT
GACGATCGGCTCATCACAAACCAAGCGCTTCCGGAACACCATGACGGACTATCCCACGAA

GluCysProGlyArgSerArgArgProCysThrMetSerThrAsnProLysProGlnLys



FIG. 58B

241 GCGAGTCCCCGGAGGTCTCGTAGACCGTGCACCATGAGCACGAATCTAAACCTCAA

CGCTCACGGGCCCTCCAGAGCATCTGGCACGTGGTACTCGTGCTTAGGATTGGAGTT

LysAsnLysArgAsnThrAsnArgProGlnaspValLysPheProGlyGlyGln

301 AAAAACAAACGTAACACCAACCGTCCACAGGACGTCAGTTCCCGGGTGGCGGC

T'TTTTTGTGCAATTGGTGGTGGCAGGGGTGTCCTGCAGTCAGGCCCCACCGCCAG

IleValGlyGlyValTyrLeuLeuProArgArgGlyProArgLeuGlyValArgAlaThr

361 AGATCGTTGGTGGAGTTACTTGTGCCCCGCAAGGGGCCCTAGATTGGGTGTGCCCCGGA

TCTAGCAACCACCTCAAATGAACAACGGGGGGTCCCCGGATCTAACCCACACGGCGCT

ArgLysThrSerGluArgSerGlnProArgGlyArgArgGlnProIleProLysAlaArg

421 CGAGAAAGACTTCCGAGGGTCCAACTCGAGGTAGACGTCAGCCTATCCCAAGGCTC

GCTCTTCTGAAGGCTGCCAGCGTTGGAGCTCCATCTGCAGTCGGATAGGGTCCGAG

ArgProGluGlyArgThrTrpAlaGlnProGlyTyrProTrpProLeuTyrGlyAsnGlu



481 GTCGGCCGAGGGCAGGACCTGGCTCAGCCCCGGTACCTGGCCCTATGCCAATG
CAGCCGGCTCCCGTCTGGACCCGAGTCGGGCCATGGAACCGGGAGATAACCGTTAC

GlyCysGlyTrpAlaGlyTrpLeuSerProArgGlySerArgProSerTrpGlyPro

541 AGGGCTGGGGTGGGGGGATGGCTCTGTCCCCGTGGCTCTCGGCCTAGCTGGGCC
TCCCGAACGCCACCCGCCCTACCGAGGACAGAGGGCACCGAGGAGGCCGATCGACCCGG

ThrAspProArgArgSerArgAsnLeuGlyLysValIleAspThrLeuThrCysGly

601 CCACAGACCCCCGGTAGGTGGGCAATTGGTAAGGTCAATCGATAACCTTACGGTGCG
GGTGTCTGGGGGCCATCCAGCGGTTAACCCATTCAGTAGCTATGGGAATGCACGC

Phe

661 GCTTC
CGAAG

* = Start of long HCV ORF
| = putative first amino acid of large HCV polyprotein
= putative small encoded peptides (that may play a
translational regulatory role)

FIG. 58C



FIG. 59

1 ValLeuGlyArgGluArgProCysGlyThrAlaOP AM GlyAlaCysGluCysProGly
GTCTGGGTCGCGAAAGGCCTTGTGACTGCCTGATAAGGGTGTGGAGTGCCTGGGG
CAGAACCCAGCGCTTCCGGAACACCATGACGGACTATCCACCGAACGGCTCACGGGGCC

*

61 ArgSerArgArgProCysThrMetSerThrAsnProLysProGlnArgLysThrLysArg
AGGTCTCGTAGACCGTCACCATGACCACCAATCCTAAACCTCAAAGAAAACCAAACGT
TCCAGAGCATCTGGCACCGTGGTACTCGTGCTAGGATTGGAGTTCTTTGGTTGCA

121 AsnThrAsnArgArgProGlnAspValLysPheProGlyGlyGlyGlnIleValGlyGly
AACACCAACCGTCGCCACAGGACGTCAAGTCCCCGGTGGCGGTCAAGATCGTTGGTGG
TTGTGGTTGGCAGGGGTGTCAGTCAAGGGCCACCGCCAGTCTAGCAACCACCT

181 ValTyrLeuProArgArgGlyProArgLeuGlyValArgAlaThrArgLysThrSer
GTTTACTTGTGCCGCCAGGGCCTAGATTGGGTGTGCCGACGAGAAAGACTTCC
CAAATGACAACGGGGTCCCCGGGATCTAACCCACACGCCGCTGCTCTTCTGAAGG

overlap with CA290a-----

241 GluArgSerGlnProArgGlyArgGlnProIleProLysAlaArgArgProGluGly
GAGGGTGGCAACCTCGAGGTAGACGTCAGCCTATCCCCAAGGCTCGTGGGGGGAGGG
CTCGGCCAGCGTTGGAGCTCCATCTGCAAGTCGGATAGGGGTCCGGAGCAGGGCTCCG

301 ArgThrTrpAlaGlnProGlyTyrProTrpProLeuTyrGlyAsnGluGlyCys
AGGACCTGGGCTCAGGCCGGGTACCCCTGGCCCTATGGCAATGAGGGCTGCG
TCCTGGACCCGAGTCGGGCCATGGGAACCGGGAGATAACCGTTACTCCCGACGC

* = putative initiator methionine codon



FIG. 60

#ProProOP
#SerThrMetAsnHisSerProValArgAsnTyrCysLeuHisAlaGluSerValAM
#LeuHisIleGluSerLeuProCysGluGluLeuSerSerArgArgLysArgLeuAla
1 CTCCACCATGAATCACTCCCCGTGAGGAACTACTGTCTCACGCAGAAAGCGTCTAGCC
GAGGTGGTACTTAGTGAGGGACACTCCTTGATGACAGAAGTGCGTCTTCGCAGATCGG

#MetSerValValGlnProProGlyProProLeuProGlyGluProAM

MetAlaLeuValOP
61 ATGGCGTTAGTATGAGTGTGCGAGCCTCCAGGACCCCCCTCCGGAGAGCCATAGT
TACCGCATCATACTCACAGCACGTCGGAGGTCTGGGGGGCCCTCTCGGTATCA

121 GCTCTCGGAACCGGTGACTACACCGGAATTGCCACGGACCCGGTCCTTCTGGATC
CCAGACGCCCTGGCCACTCATGTGGCCTTAACGGTCTGCTGGCCAGGAAGAACCTAG
-----overlap with ag30a-----

#MetProGlyAspLeuGlyValProProGlnAspCysAM

181 AACCGGCTCAATGCCCTGGAGATTGGCGTGCCCCCGCAAGACTGTGCTAGCCGAGTAGTGT
TTGGGCAGTTACGGACCTCTAACCCGACGGGGCGTTCTGACCGATCGGCTCATCACA

OP AM GlyAlaCysGluCysProGlyArgSer

241 TGGGTGGCGAAAGGCCTTGTGGTACTGCCTGATGGGTGCTTGCGAGTGCCCCGGAGGT
ACCCAGGGCTTCCGGAACACCCATGACGGACTATCCCACGAACCGCTCACGGGCCCTCCA

* = Start of long HCV ORF
= Putative small encoded peptides (that may
play a translational regulatory role)

ArgArg
301 CTCGTAGA
GAGCATCT



FIG. 61

-----Overlap with 15e -----

Gly Ala Cys Tyr Ser Ile Glu Pro Pro Ile Gln Arg Leu His Gly
1 GGG GCT GCT ACT CCAT AGA ACC ACT GGAT CTAC CTCC AT CAAG ACT CCAT GGCG
CCCC GAC GAT GAG GT AT CT GG TG AC CT AG AT GG TT AG TA GT TT CT GAG GT AC CG

Leu Ser Ala Phe Ser Leu His Ser Tyr Ser Pro Gly Glu Ile Asn Arg Val Ala Ala Cys
61 CTC AGC GCAT TT CACT CCAC AGT TA CT CCAG GT GA AT TA AT AG GG TT GG CG CAT GC
GAG T CG CG TA AA AGT GAG GT CT CA AT GAG AG GT CC ACT TT AA TT AT CCC ACC GG CG TA CG

Gly*
G

Leu Arg Gly Leu Gly Val Pro Pro Pro Leu Arg Ala Arg Ser Val Arg
121 CTC AGA AA CT TT GG GT AC CC GG CC TT RG CG AG CT TG GG AG AC ACC GG CC GG CCT CG CAG GG
GAG T CTT TG AA ACC CC AT GG CG GG AAC CG CT CG AAC CCT CT GT GG CC GG CCT CG CAG GG

Ala Arg Leu Ala Arg Gly Gly Arg Ala Ala Ile Cys Gly Lys Tyr Ile Phe Asn Trp
181 GCT TAG GCT TCT GG CC AG AG GG CAG GG GT GC C AT AT GT GG CA GT AC CT CT CA CT GG
CG AT CCC GA AG ACC GG GT CT CC CT CG T C C C G A CG GT AT AC ACC GT CA TG GAG A AG T G A C C

Ala Val Arg Thr Lys Leu Lys
241 GCAG TAA GAA CAA AG CT CA AAC
CGT CATT CT TGT TT CG AG T TG

* = nucleotide heterogeneity



FIG. 62A

CACTCCACCATGAATCACTCCCCGTGAGGGAACTACTGTCTCACGCAGAAAGCGTCTAG
CCATGGCGTTAGTATGAGTGTCTGCAGCCCTCCAGGACCCCCCTCCGGGAGAGCCATA
GTGGTCTGCGGAACCGGTGAGTACACCGGAATTGCCAGGACGACCGGGTCTTCTTGGGA
TCAACCCGCTCAATGCCTGGAGATTGGCGTGCCTGGCAAGACTGCTAGCCGAGTAGT
GTTGGGTCGCGAAAGGCCCTGTGGTACTGCCTGATAGGGTGCTGAGTGCCCCGGGAG-300

---(Putative initiator methionine codon)
GTCTCGTAGACCGTGACCATGAGCACGAATCCTAAACCTCAAAAAAAACAAACGTAA
CACCAACCGTCGCCACAGGACGCTCAAGTCCCGGGTGGCGGTAGATCGTTGGAGT
TTACTTGTGCGCGCAGGGGCCCTAGATGGGTGCGCGCAGGAAAGACTTCCGA
GCGGTCGCAACCTCGAGGTAGACGTCAGCCTATCCCCAAGGCTCGTGGCCGAGGGCAG
GACCTGGGCTCAGCCCAGGTACCCCTGGCCCTATGGCAATGAGGGCTGCGGGTGGG-600
GGGATGGCTCCTGTCTCCCCGTGGCTCTCGGCCTAGCTGGGCCACAGACCCCCGGCG
TAGGTGCGCAATTGGTAAGGTACATCGATACCCCTACGTGCGGCTTCGCCGACCTCAT
GGGGTACATACCGCTCGTCGGCGCCCTCTGGAGGCCTGCCAGGGCCCTGGCGCATGG
CGTCCGGGTTCTGGAAAGACGGCGTAGACTATGCAACAGGAACCTCTGGTTGCTCTT
CTCTATCTTCTCTGGCCCTGCTCTTGACTGTGCCCCCTCGGCCCTACCAAGT-900
GCGCAACTCCACGGGGCTTACACAGTCACCAATGATTGCCCTAACTCGAGTATTGTGTA
CGAGGGGGCGATGCCATCTGCACACTCCGGGGTGCCTCCCTGCGTTGTGAGGGCAA
CGCCTCGAGGGTGTGGGCGTAGACCCCTACGGTGGCACCAAGGGATGGCAAACCTCCC
CGCGACGCGAGCTCGACGTACATCGATCTGCTGTGCGGAGGCCACCCCTGTCGGC
CCTCTACGTGGGGACCTATGCGGGTCTGTTCTGCGGCCACTGTGCTTACCTTCTC-1200
TCCCAGCGCCACTGGACGACGCAAGGTTGCAATTGCTCTATCTATCCGGCCATATAAC
GGGTACCGCATGGATGGGATATGATGATGAACTGGTCCCTACGACGGCGTTGGTAAT
GGCTCAGCTGCTCCGGATCCCACAAGCCATTTGACATGATCGCTGGTCTACTGGG
AGTCTGGCGGGCATAGCGTATTTCTCATGGTGGGGAACTGGCGAAGGTCTGGTAGT
GCTGCTGCTATTGCGCGTCACGCGGAAACCCACGTACCGGGGAAAGTGCCTGCCA-1500
CACTGTGCTGGATTGTTAGCCTCTCGCACAGGCCAACCTGAACTGCAATGATAGCCTAA
CAACACCAACGGCAGTTGGCACCTCAATAGCACGGCCCTGAACTGCAATGATAGCCTAA
CACCGGCTGGTTGGCAGGGCTTTCTATCACCACAAGTTCAACTCTCAGGCTGTCTGA
GAGGCTAGCCAGCTGCCACCCCTACGATTTGACCAGGGCTGGGCCCTATCAGTTA
TGCCAACGGAAAGCGGGCCCGACAGCGCCCTACTGCTGGCACTACCCCCAAAACCTTG-1800
CGGTATTGCGCCGGAAGAGTGTGTGTTGGTCCGGTATATTGCTTCACTCCCAGCCCCGT
GGTGGTGGGAACGACCGACAGGTGGCGCGCCACCTACAGCTGGGTGAAAATGATAC
GGACGCTTCGCTTAAACATACAGGCCACCGCTGGCAATTGGTTGGTGTACCTG
GATGAACCTAACAGGATTACCAAAGTGTGCGGAGCGCCCTCTGTGTCATGGAGGGC
GGGCAACAAACACCCCTGCACTGCCCACTGATTGCTTCCGCAAGCATCGGACGCCACATA-2100
CTCTGGTGCCTCGGCTCCGGTCCCTGGATCACACCCAGGTGCTGACTACCCGTATAG
GCTTGGCATTATCCTGTACCATCAACTAACCATATTTAAACATCAGGATGTACGTGG
AGGGGTCGAACACAGGCTGGAAAGCTGCCAACCTGCTTACTGCTGACCAACTACACAGTGGCAGGT
CCTCCCGTGTCTTACAACCCCTACGCTTGTCCACCGCCTCATCCACCTCCACCA-2400
GAACATTGTGGACGTGCACTTGTACGGGGTGGGTCAAGCATCGCTGGCCAT
TAACCTGGAGTACGTCGTTCTCTGTTCTGCTTGTGAGACGCGCGCTGCTCCTG
CTTGTGGATGATGCTACTCATATCCAAGCGGAGGCGGTTGGAGAACCTCGTAATACT
TAATGCAAGCATCCCTGGCGGGACGACGGTCTTGTATCCTTCTCGTGTCTGT
TGCAATGGTATTGAAAGGGTAAGTGGGTGCCCGGAGCGGTCTACACCTTCTACGGGATGTG-2700
GCCTCTCCTCCGTCTCTGGTGGCGTTGCCCAAGCGGGCGTACCGCGCTGGACACGGAGGT
GGCGCGTCGTGTGGCGGGTTGGTCTCGTGGGTGATGGCGTGAATCTGTGACCAT
TTACAAGCGCTATATCAGCTGGTGTGGCTTGTGGCTTCAAGTATTCTGACCAAGAGTGG
AGCGCAACTGCACTGCGATTCCCCCTCAACGTCCGAGGGGGCGCGACGCCGT
CTTACTCATGTGCTGACACCCGACTCTGGTATTGACATACCAAAATTGCTGCTGGC-3000
CGTCTCGGACCCCTTGGATTCTCAAGCCAGTTGCTTAAAGTACCCCTACTTGTGCG
CGTCCAAGGCCTCTCCGGTCTGCGCGTTAGCGCGGGAGATGATGGAGGGCATTACGT
GCAAATGGTCAATTAAGTTAGGGCGCTTACTGGCACCATGTTATAACCATCTCAC
TCCTCTGGGACTGGCGCACACCGCTTGCAGATCTGGCGTGGCTGAGAGCAGT
CGTCTCTCCAAATGGAGACCAAGCTCATACGTGGGGCGAGATAACGCCGCGTGCAGG-3300
TGACATCATCAACGGCTTGCTGTTCCGCCGCAGGGGGGGAGATACTGCTCGGGC
AGCCGATGGAATGGTCTCAAGGGGTGGAGGGTGTGCTGGCGCCCATCACGGCGTACGCCA
GCAGACAAGGGGGCTCTAGGGTGCATAATACCAAGCTAACGGCCGGGACAAAACCA
AGTGGAGGGTGGAGGTCCAGATTGTGTCACACTGCTGCCAAACCTCTGGCAACGTGCA



FIG. 62B

CAATGGGTGTGCTGGACTGTCTACCACGGGGCCGGAACGAGGACCATCGCGTCACCCAA-3600
GGGTCTGTATCCAGATGTATACCAATGTAGACCAAGACCTTGTGGCTGGCCCGCTCC
GCAAGGTAGCCGCTATTGACACCCCTGCACCTTGCGGCTCTGGACCTTACCTGGTCAC
GAGGCACGCCGATGTCATTCCCGTGCGCCGGCGGGGTGATAGCAGGGGCAGCCTGCTGTC
GCCCGGCCCATTTCTACTTGAAAGGCTCTCGGGGGTCCGCTGTTGTGCCCGCGGG
GCACGCCGTGGGCATATTTAGGGCCGCGGTGACCCCGTGGAGTGGCTAAGGCGGTGGA-3900
CTTTATCCCTGTGGAGAACCTAGAGACAACCATGAGGTCCCCGGTGTTCACGGATAACTC
CTCTCCACCAGTAGTGCCCCAGAGCTTCAAGGTGGCTCACCTCATGCTCCACAGGCAG
CGGCAAAAGCACCAAGGTCCCAGGCTGCATATGCAGCTCAGGGCTATAAGGTGCTAGTACT
CAACCCCTCTGTTGCTGCAACACTGGCTTGGCTTACATGTCCAAGGCTCATGGAT
CGATCCTAACATCAGGACCGGGGTGAGAACAAATTACCAACTGGCAGCCCCATCACGTACTC-4200
CACCTACGGCAAGTTCTTGCCGACGGCGGGTGCTGGGGGGCGTTATGACATAATAAT
TTGTGACGAGTGCCACTCCACGGATGCCACATCCATCTGGGATCGGCACTGTCTTGA
CCAAGCAGAGACTGCGGGGGCGAGACTGGTGTGCTCGGCCACCCCTCCGGGCTC
CGTCACTGTGCCCATCCAACATCGAGGGAGGTGCTGTCCACCAACCGGAGAGATCCC
TTTTACGGCAAGGCTATCCCCCTCGAACGTAATCAAGGGGGGAGACATCTCATCTTCTG-4500
TCATTCAAAGAAGAAGTGCAGAAGTGCAGCAGCTCGCCAACTGGTGCATTGGGATCAATGC
CGTGGCCTACTACCGCGTCTTGACGTGTCCTGCATCCCGACCAGCGGCGATGTTGCTG
CGTGGCAACCGATGCCCTCATGACCGGCTATACCGGCAGTCGACTCGGTGATAGACTG
CAATACGTGTGTCACCCAGACAGTCGATTTAGCCTGACCCCTACCTCACCAATTGAGAC
AATCACGCTCCCCCAGGATGCTGTCCCGACTCAACGTCGGGGCAGGACTGGCAGGGG-4800
GAAGCCAGGCATCTACAGATTGGCACCGGGGGAGCGCCCTCCGGCATGTTGACTC
GTCCGTCTCTGTGAGTGTATGACGCAGGTGCTGTTGGTATGAGCTCACGCCGCCGA
GAATACAGTTAGGCTACGAGCGTACATGAACACCCCCGGGGCTTCCCGTGTGCCAGGACCA
TCTTGAATTTGGGAGGGCGTCTTACAGGCTCACTCATATAGATGCCACTTCTATC
CCAGACAAAGCAGAGTGGGGAGAACCTTACCTGGTAGCGTACCAAGCCACCGTG-5100
CGCTAGGGCTCAAGCCCTCCCCCATCGTGGGACCAGATGTGGAAAGTGTGTTGATTGCC
CAAGCCCACCCCTCCATGGGCCAACACCCCTGCTATACAGACTGGGCGCTGTTGAGAATGA
AATCACCTGACGCACCCAGTCACCAAAATACATCATGACATGATGTCGCCGACCTGGA
GGTCGTACGAGCACCTGGGTGCTCGTGGCGCGTCTGGCTGTTGGCCCGTATTG
CCTGTCAACAGGCTCGTGGTCAAGTGGGAGGGTGTGCTTGGCTGCTGTTGGGAAAGCCGGCAAT-5400
CATACCGTACAGGGAAAGTCTCTACCGAGAGGTTGATGAGATGGAAGAGTGTCTCAGCA
CTTACCGTACATCGAGCACAGGGATGATGCTCGCCGAGCAGTTCAAGCAGAACGGCCCTCGG
CCTCTGCAAGAGCGTCCCGTCAGGCAGAGGTTATCGCCCTGCTGTTGGCAGACCAACTG
GCAAAAACCTGAGACCTTCTGGGCAAGCATATGGAACCTTCATCAGTGGGATACAATA
CTTGGGGCTTGTCAACGCTGCCGGTAACCCCGCCATTGCTTCAAGTGGCTTTTAC-5700
AGCTGCTGTCACCAAGCCACTAACCAACTAGCCAAACCCCTCCTCTCAACATATTGGGGG
GTGGGGCTGCCAGCTCGCCGCCGGTGCCTACTGCCCTTGTGGCGCTGGCT
AGCTGGCGCCGCATCGGCAGTGTGGACTGGGAAGGTCTCTCATAGACATCCTGCAAG
GTATGGCGCGGGCGTGGCGGGAGCTTGTGGCATTCAGGATCATGAGCGGTGAGGTCCC
CTCCACGGAGGAACCTGGTCAATCTACTGCCGCCATCCTCTGCCGGAGGCCCTGTTAGT-6000
CGGCGTGGCTGTGCAGCAATACTGCGCCGGCACGTTGGCCGGAGGGGAGGGGAGGGCACTGCA
GTGGATGAACCGGCTGATAGCCTCGCCTCCGGGGGAACCATGTTCCCCCACGCACCA
CGTGCAGAGAGCGATGCAAGCTGCCGCTACTGCCATACTCAGCAGCCTCACTGTAAC
CCAGCTCCTGAGGCAGTCACCAAGTGGATAAGCTGGAGTGTACCACTCCATGCTCCGG
TTCCTGGCTAAGGGACATCTGGGACTGGATATGCGAGGTGTTGAGCGACTTTAACCTG-6300



FIG. 62C

GCTAAAAGCTAAGCTATGCCACAGCTGCCTGGATCCCTTGTGCTGCCAGCGCG
GTATAAGGGGGCTGGCGAGTGGACGGCATCATGCACACTCGCTGCCACTGTGGAGCTGA
GATCACTGGACATGTCAAAAACGGGACGATGAGGATCGTCGGTCTAGGACCTGCAGGAA
CATGTGGAGTGGGACCTTCCCCATTAAATGCCAACACCACGGGCCCCCTGTACCCCCCTTCC
TGCGCCGAACATACAGTCGCGTATGGAGGGTGTCTGCAGAGGAATATGTGGAGATAAG-6600
GCAGGTGGGGACTTCAACTACGTGACGGGTATGACTACTGACAATCTCAAATGCCCGTG
CCAGGGCTCATGCCCGAATTTCACAGAATTGGACGGGTGCGCCTACATAGGTTGC
GCCCTCTGCAAGCCCTGCTGCCGGAGGGAGGTATCATTAGAGTAGGACTCCACGAATA
CCCGGTAGGGTGCACATTACCTTGCAGGCCGAACCGACGTGGCCGTGTTGACGTCCAT
GCTCACTGATCCCTCCCATATAACAGCAGAGGCCGGGGGGGGGGGGAGGGGATC-6900
ACCCCTCTGTCGCCAGCTCCTCGCTAGCCAGCTATCGCTCATCTCAAGGCAAC
TTGCACCGCTAACCATGACTCCCCCTGCTGAGCTCATAGAGGCCAACCTCTATGGAG
GCAGGGAGATGGGCGGCAACATCACCAAGGGTTGAGTCAGAAACAAAGTGGTGATTCTGGA
CTCCTCGATCCGCTTGTGGCGGGAGGGAGGACGAGCAGGGAGATCTCGTACCCGAGAAAT
CCTGCCGAAGTCTCGGAGATTCGCCAGGGCCCTGCCCTGGGGCGCCGGACTATAA-7200
CCCCCGCTAGTGGAGACGTGGAAAAAGCCCGACTACGAACCAACCTGTGGTCCATGGCTG
TCCGCTTCCACCTCCAAAGTCCCCTCCTGTGCCCTCCGCCCTGGAAAGAAGCGGACGGTGGT
CCTCACTGAATCAACCCATCTACTGCCTGGCGAGCTGCCACCCAGAAGCTTGGCAG
CTCCTCAACTCCGGCATTACGGCGACAATACGACAACATCCTCTGAGCCCGCCCCCTC
TGGCTGCCCCCCCAGCTCCGACGCTGAGTCCTATTCCCTCATGCCCTGGAGGGGGA-7500
GCCTGGGGATCGGATCTTAGCGACGGGTATGGTCAACGGTCAGTAGTGAGGCCAACGC
GGAGGGATGTCGTGTGCTGCTCAATGTCTTACTCTGGACAGGCGCACTCGTCAACCCGTG
CGCCCGGAAAGAACAGAAACTGCCATCAATGCACTAAGCAACTCGTGTGCTACGTACCA
CAATTGGTATTCCACCCACTCACGCACTGCTTGCACAGGAGAAAGTACATT
TGACAGACTGCAAGTCTGGACAGCCATTACCAAGGAGTACTCAAGGAGGTTAAAGCAGC-7800
GGCGTCAAAAGTGAAGGCTAACCTGCTATCCGTAGAGGAAGCTTGCGCCATGCCAGAAA
ACACTCAGCAAATCCAAGTTGGTTATGGGGCAAAAGACGTCGGTCCGCTGCCATGCCAGAAA
GGCCGTAACCCACATCAACTCCGTGTGGAAAGACCTCTGGAAAGACAATGTAACACCAAAT
AGACACTACCATCATGGCTAAGAACGAGGTTTCTGCGTTAGCCTGAGAAGGGGGTCG
TAAGCCAGCTCGTCTCATCGTGTCCCCGATCTGGCGTGCCTGTCGAAAAGATGGC-8100
TTTGTACGACGTGGTTACAAAGCTCCCTGGCGTGTGGAAAGCTCTACGGATTCCA
ATACTCACCAGGACAGCGGGTTGAATTCCCTCGTGCAGCGTGGAAAGTCAAGAAAACCC
AATGGGGTTCTCGTATGATAACCGCTGCTTGACTCCACAGTCACTGAGAGCGACATCCG
TACGGAGGAGGCAATCTACCAATGTTGTGACCTCGACCCCCAAGCCCGCTGGCCATCAA
GTCCCTACCGAGAGGGTTATGTTGGGGCCCTTACCAATTCAAGGGGGAGAAGT-8400
CGGCTATCGCAGGTGCCCGCGAGCGCGTACTGACAACTAGCTGTGGTAACACCCCTCAC
TTGCTACATCAAGGCCCGGGCAGCCTGTCGAGCGCAGGGCTCCAGGACTGCACCATGCT
CGTGTGTGGCGACGACTTAGTCGTTATCTGTGAAAGCGCGGGGGTCCAGGAGGACGCC
GAGCCCTGAGAGCCTCACCGAGGCTATGACCAAGGTACTCCGCCCTGGGGACCCCC
ACAACCAAGAACGACTTGGAGCTATAACATCATGCTCCCAACGTGTGAGTCGCCA-8700
CGACGGCGCTGGAAAGAGGGTCTACTACCTACCCGTGACCCCTACAACCCCTCGCGAG
AGCTCGTGTGGAGAGCACGCAAGAACACACTCCAGTCATTTCTGGCTAGGCAACATAATCAT
GTTTGGCCCCACACTGTGGCGAGGATGATACTGATGAGACCCATTCTTAGCGTCTTAT
AGCCAGGGACCGCTGAACAGGCCCTCGATGCGAGAATCACGGGCTGCTACTCCAT
AGAACCAACTTGATCTACCTCAATCATCAAAGACTCCATGGCCTCAGCGCATTGGGT
CCACAGTTACTCTCAGGTGAAATTAAATAGGGTGGCCGCATGCCCTCAGAAAACCTGGGGT-9000
ACCGCCCTTGCAGCTGGAGACACCGGGCCGGAGCGTCCGCGCTAGGCTTCTGGCAG
AGGAGGCAGGGCTGCCATATGTGGCAAGTACCTCTCAACTGGCAGTAAGAACAAAGCT
CAAAC



FIG. 62D

1 CACTCCACCATGAATCACTCCCCGTGAGGAACACTGTCTTACGCAGAAAGCGCTAG
GTGAGGTGGTACTTAGTGAGGGGACACTCCTGATGACAGAAGTGCCTTCAGATC
61 CCATGGCGTTAGTATGAGTGTGCGCAGCCTCCAGGACCCCCCTCCGGGAGAGCCATA
GGTACCGCAATCATACACAGCACGTCGGAGGTCTGGGGGGAGGGCCCTCTCGGTAT
121 GTGGTCTGCGGAACCGGTGAGTACACCGGAATTGCCAGGACGACGGGTCTTCTGGA
CACCAAGACGCCTTGGCCACTCATGTGGCTTAACGGTCTGCTGGCCAGGAAAGAACCT
181 TCAACCCGCTCAATGCCCTGGAGATTGGCGTCCCCCGCAAGACTGCTAGCCGAGTAGT
AGTTGGCGAGTTACGGACCTCTAAACCGCACGGGGCGTTCTGACGATCGCTCATCA
241 GTTGGGTGCGAAAGGCCTTGTGGTACTGCCTGATAGGGTGCTGCGAGTGCCCCGGAG
CAACCCAGCGCTTCCGGAACACCATGACGGACTATCCCACGAACGCTCACGGGGCCCTC
301 GTCTCGTAGACCGTCACCATGAGCACGAATCTAAACCTCAAAAAAAACAAACGTA
CAGAGCATCTGGCACGTGGTACTCGTCTAGGATTGGAGTTTTTTGTTGCATT
361 CACCAACCGTCGCCACAGGACGTCAAGTCCCAGGGTGGCGGTAGATCGTGGTGGAGT
GTGGTTGGCAGCGGGTGTCTGCAAGGGCCACCGCCAGTCTAGCAACCACCTCA
421 TTACTTGTGCGCGCAGGGGCCCTAGATTGGGTGTGCGCGCAGCAGAAAGACTTCGA
AATGAACAACGGCGCGTCCCCGGGATCTAACCCACACCGCGCTGCTTTCTGAAGGCT
481 GCGGTGCAACCTCGAGGTAGACGTCAGCCTATCCCAAGGCTCGTCGGCCGAGGGCAG
CGCCAGCGTTGGAGCTCCATCTGCAAGTCTAGGGTTCCGAGCAGCCGGCTCCGTC
541 GACCTGGGCTCAGCCGGGTACCCCTGGCCCTCTATGGCAATAGGGCTGCGGGTGGC
CTGGACCCAGTCGGGCCATGGAAACGGGAGATACGTTACTCCGACGCCACCC
601 GGGATGGCTCCTGTCCTGGCTCTGGCCTAGCTGGGGCCCCACAGACCCCCGGCG
CCCTACCGAGGACAGAGGGCACCGAGAGCCGGATCGACCCGGGTGCTGGGGCCCG
661 TAGGTGCGCAATTGGTAAGGTATCGATAACCTTACGTGCGGCTTCCGACCTCAT
ATCCAGCGCGTAAACCCATTCCAGTAGCTATGGGAATGCACGCCAAGCGGCTGGAGTA
721 GGGGTACATACCGCTCGTCGGCGCCCTCTGGAGGGCGCTGCCAGGGCCCTGGCGCATGG
CCCCATGTATGGCGAGCAGCCGGGGAGAACCTCCGACGGTCCCAGGGACCGCGTACC
781 CGTCCGGGTTCTGGAAGACGGCGTGAACATGCAACAGGAACCTCCTGGTCT
GCAGGGCCAAGACCTCTGCCACTTGATACGTTGCTTGAAGGACAACGAGAAA
841 CTCTATCTTCTTCTGGCCCTGCTCTTGCTTGACTGTGCCGCTTCCGCTACCAAGT
GAGATAGAAGGAAGACCGGGACGAGAGAACGAACTGACACGGCGAAGCCGGATGGTCA
901 GCGCAACTCCACGGGCTTACACGTACCAATGATTGCCCTAACTCGAGTATTGTGA
CGCGTTGAGGTGCCGAAATGGTCACTGGTACTAACGGGATTGAGCTCATACACAT
961 CGAGGGCGCCGATGCCATCCTGCACACTCCGGGGTGCCTCCCTGCGTGGTGAAGGGAA
GCTCCGCCGGCTACGGTAGGACGTGTGAGGGCCCACGCAGGGAAACGCAAGCACTCCGTT
1021 CGCCTCGAGGTGTTGGGTGGCGATGACCCCTACGGTGGCCACCAAGGGATGGCAA
ACTCCC
GCGGAGCTCCACAACCCACCGCTACTGGGATGCCACCGGTGGTCCCTACCGTTGAGGG
1081 CGCGACGCGACTTCGACGTACATCGATCTGCTTGTGGAGCGCCACCCCTGTTGGC
GCGCTGCGTCAAGCTGCACTAGACGAACAGCCCTCGCGGTGGAGACAAGCCG
1141 CCTCTACGTGGGGGACCTATGCGGGTCTGCTTTCTTGTGGCCA
ACTGTTCACCTCTC
GGAGATGCACCCCCCTGGATACGCCAGACAGAAAGAACAGCCGGTTGACAAGTGGAAAGAG
1201 TCCCAGGCGCCACTGGACGACGCAAGGTTGCAATTGCTCTATCTATCCC
GGGGTCCGCGGTGACCTGCTGCGTCCACGTTAACGAGATAGATAGGGCCGGTATATTG
1261 GGGTACCGCATGGCATGGGATATGATGATGAACTGGTCCCTACGACGGCGTTGGTAAT
CCAGTGGCGTACCGTACCCATACTACTACTTGACCAAGGGATGCTGCCGCAACCATTA



FIG. 62E

1321 GGCTCAGCTGCTCCGGATCCCACAAGCCATCTGGACATGATCGCTGGTGCCTACTGGGG
CCGAGTCGACGAGGCTAGGGTTCGGTAGAACCTGTAAGCGACCAAGAGTGA
1381 AGTCCTGGCGGGCATAGCGTATTCTCCATGGTGGGAACTGGGGAAGGTCTGGTAGT
TCAGGACCGCCGTATCGCATAAACAGAGGTACCAACCCCTGACCCGCTTCAGGACCATCA
1441 GCTGCTGCTATTGCCGGCGTGACGCCAAACCCACGTACCCGGGGAAAGTGCCTGGCGCA
CGACGACGATAAACGGCCGAGCTGCCCTTGGGTGAGTGGCCCCCTCACGGCCGGT
1501 CACTGTGCTGGATTGTTAGCCTCTCGCACCAGGGCACAAGCAGAACGTCAGCTGAT
GTGACACAGACCTAAACAAATCGAGGAGCGTGGTCCGGTTCTGCAGGTCAGACTA
1561 CAACACCAACGGCAGTTGGCACCTCAATAGCACGCCCTGAACGTCAATGATAGCCTCAA
GTTGGTTGCCGTCAACCGTGGAGTTATCGTGCCTGGGACTTGACGTTACTATCGGAGTT
1621 CACCGGCTGGTGGCAGGGCTTTCTATACCACAAGTTCAACTCTTCAGGCTGTCTGA
GTGGCCGACCAACCCTCCGAAAAGATAGTGGTGTCAAGTTGAGAAGTCCGACAGGACT
1681 GAGGCTAGCCAGCTGCCGACCCCTTACCGATTTGACCAAGGGCTGGGGCCCTATCAGTTA
CTCCGATCGGTGACGGCTGGGAATGGCTAAACTGGTCCCACCCGGGATAGTCAAT
1741 TGCCAACGGAAGCGGCCCCGACCCAGCGCCCTACTGCTGGCACTACCCCCAAAACCTG
ACGGTTGCCCTCGCCGGGCTGGTCGCGGGGATGACGACCGTGTAGGGGGTTTGAAC
1801 CGGTATTGTGCCCGGAAGAGTGTGTGGTCCGGTATATTGCTTCACTCCCAGCCCGT
GCCATAACACGGCGCTTCACACACACCAGGCCATATAACGAAGTGAGGGTCGGGCA
1861 GGTGGTGGGAACGACCGACAGGTGGCGCCACCTACAGCTGGGTGAAAATGATAC
CCACCAACCTTGCTGGCTGTCCAGCCCGCGGGTGGATGTCGACCCACTTTACTATG
1921 GGACGTCTCGTCCTAACAAATACCAAGGCCACCGCTGGCAATTGGTTCGGTTGACCTG
CCTGCAGAACGAGGAATTGTTATGGTCCGGTGGCAACCGTTAACCAAGCCAACATGGAC
1981 GATGAACACTAACTGGATTACCAAAAGTGTGGAGCGCCTCTGTGTACGGAGGGC
CTACTTGAGTTGACCTAACAGTGGTTACACGCCCTCGCGGAGGAACACAGTAGCCTCCCCG
2041 GGGCAACAAACACCCCTGCACTGCCCACTGATTGCTTCCGCAAGCATCCGACGCCACATA
CCCGTTGGTGTGGACGTGACGGGTGACTAACGAAGCGTTGTAGGCCCTGCGGTGTAT
2101 CTCTGGTGCCTCCGGTCCCTGGATCACACCCAGGTGCCTGGTCGACTACCCGTATAG
GAGAGCCACGCCAGGGCAGGGACCTAGTGTGGGTACCGGACAGCTGTAGGGCATATC
2161 GCTTGGCATTATCCTGTACCATCAACTACACCATAATTAAAATCAGGATGTACGTGGG
CGAAACCGTAATAGGAACATGGTAGTTGATGTGGTATAAATTAGTCCTACATGCACCC
2221 AGGGGTGGAACACAGGCTGGAAAGCTGCCCTGCAACTGGACGCCGGCGAACGTTGCGATCT
TCCCCAGCTGTGTCGACCTTCGACGGACGTTGACCTGCGCCCCGCTTGCACGCTAGA
2281 GGAAGACAGGGACAGGTCCGAGCTCAGCCGTTACTGCTGACCAACTACACAGTGGCAGGT
CCTCTGTCCCTGTCAGGCTGAGTCGGGCAATGACGACTGGGTGATGTGTCACCGTCCA
2341 CCTCCCGTGTCTTACAACCCCTACAGCCTTGTCCACCGGCCTCATCCACCTCCACCA
GGAGGGACAAGGAAGTGTGGGATGGTCGGAACAGGTGGCGAGTAGGTGGAGGTGGT
2401 GAACATTGTGGACGTGCACTGTACGGGGTGGGGTCAAGCATCGCTGGCCAT
CTTGTAAACACCTGCACGTGATGAACATGCCCAACCCAGTTGCTAGCGCAGGACCCGGTA
2461 TAAGTGGGAGTACGTGTTCTCCTGTTCTGCTGAGACGCCGGCGCTGCTGCT
ATTCAACCTCATGCAGCAAGAGGACAAGGAAGACGAACGTCTGCGCGCAGACGAGGAC
2521 CTTGTGGATGATGCTACTCATATCCAAGCGGAGGCCTTGAGAACCTCGTAATACT
GAACACCTACTACGATGAGTATAGGGTTCGCCCTCGCCGAAACCTTGGAGCATTATGA
2581 TAATGCAGCATCCCTGGCCGGGACGCACGGTCTGTATCCTCCTCGTGTCTCTGCTT
ATTACGTGCTAGGGACCGGGCCCTGCGTGCCTAGGAAGGAGCACAAGAAGACGAA



FIG. 62F

2641 TGCATGGTATTGAAGGGTAAGTGGGTGCCCGGAGCGGTCTACACCTTACGGGATGTG
ACGTACCATAAACTTCCCATTCAACCAACGGGCTGCCAGATGTGGAAAGATGCCCTACAC
2701 GCCTCTCCTCCTGCTCTGTTGGCGTTGCCAGCGGGCGTACGCCGCTGGACACGGAGGT
CGGAGAGGAGGACGAGGACAACCGCAACGGGTCGCCATGCCGACCTGTGCCCTCA
2761 GGCGCGCTCGTGTGGCGGTGTTCTCGTCGGGTTGATGGCGCTGACTCTGTCACCATA
CCGGCGCAGCACACCGCCACAACAAGAGCAGCCAACTACCGCAGTGGAGACAGTGGTAT
2821 TTACAAGCGCTATATCAGCTGGTGCTGTGGCTTCAGTATTTCTGACCAAGAGTGGA
AATGTTCGCGATATAGTCGACCAACCGAACACCACCGAAGTCATAAAAGACTGGTCTCACCT
2881 AGCGCAACTGCACGTGGATTCCCCCTCAACGTCGAGGGGGGCGGACGCCGTAT
TCGCGTTGACGTGACACCTAAGGGGGGAGTTGCAAGGCTCCCCCGCGCTGCCAGTA
2941 CTTACTCATGTGCTGTACACCCGACTCTGGTATTGACATACCAAAATTGCTGCTGGC
GAATGAGTACACAGACATGTGGGCTGAGACCATAACTGTAGTGGTTAACGACGACCG
3001 CGTCTTCGGACCCCTTGGATTCTCAAGCCAGTTGCTTAAAGTACCCCTACTTGTGCG
GCAGAAGCCTGGGAAACCTAAGAAGTTCGGTCAAACGAATTTCATGGGATGAAACACGC
3061 CGTCCAAGGCCCTCTCCGGTCTGCGCGTTAGCGCGAAGATGATCGGAGGCCATTACGT
GCAGGTTCCGGAAGAGGCCAAGACGCGCAATCGCCTTCTACTAGCCTCCGTAATGCA
3121 GCAAATGGTCATCATTAAGTTAGGGCGCTTACTGGCACCTATGTTATAACCATCTCAC
CGTTTACCACTAGTAATTCAATCCCCGCGAATGACCGTGGATAACAAATTGGTAGAGTG
3181 TCCTCTCGGGACTGGCGCACAAACGGCTTGCAGATCTGGCGTGGCTGTAGAGCCAGT
AGGAGAAGCCTGACCCCGTGTGCGAACGCTCTAGACCGGACCGACATCTCGGTCA
3241 CGTCTTCTCCAAATGGAGACCAAGCTCATCACGTGGGGGAGATACCGCCGCGTGC
GCAGAAGAGGGTTTACCTCTGGTTCGAGTAGTGCACCCCCGCTATGGCGCGCACGCC
3301 TGACATCATCAACGGCTTGCCTGTTCCGCCCGCAGGGGCCGGAGATACTGCTGGGCC
ACTGTAGTAGTTGCCGAACGGACAAAGGCGGGCGTCCCCGCCCTATGACGAGGCCGG
3361 AGCGATGGAATGGTCTCAAGGGGTGGAGGTTGCTGGGCCCATCACGGCGTACGCCA
TCGGCTACCTTACCAAGAGTTCCCCACCTCAACGACCGCGGGTAGTGCCCATGCCGT
3421 GCAGACAAGGGGCCTCTAGGGTGATAATCACCAAGCCTAATGGCCGGGACAAAAACCA
CGTCTGTTCCCCGGAGGATCCCACGTATTAGTGGTGGATTGACCGGCCCTGTTTGGT
3481 AGTGGAGGGTGAGGTCAAGATTGTCAGATTGTCAGTGCTGCCAAACCTCTGGCAACGTGC
ATCACCTCCACTCCAGGTCTAACACAGTTGACGACGGTTGGAAAGGACCGTTGACGTA
3541 CAATGGGGTGTGACTGTCTACACGGGGCGGAACGAGGACCATCGCGTCACCCAA
GTTACCCACACGACCTGACAGATGGTCCCCGGCTTGCTCTGGTAGCGCAGTGGGTT
3601 GGGTCTGTCTCCAGATGTATAACCAATGTAGACCAAGACCTTGTGGCTGGCCGCTCC
CCCAGGACAGTAGGTCTACATATGGTTACATCTGGTCTGGAAACACCGACCGGGCGAGG
3661 GCAAGGTAGCCGCTATTGACACCCCTGCACCTGGCGCTCCTCGGACCTTACCTGGTAC
GCTTCCATCGCGAGTAACGTGGGACGTGAACGCCGAGGAGCCTGGAAATGGACCGAGTG
3721 GAGGCACGCCGATGTCTTCCCGTGCACGGGGGTGATAGCAGGGCAGCCTGCTGTC
CTCCGTGCCGCTACAGTAAGGGCACGCCGCCCCACTATCGTCCCCGTCGGACGACAG
3781 GCCCGGCCCTTCTACTTGAAAGGCTCTCGGGGGTCCGCTTGTGCCCCGCCGG
CGGGGCCGGGTAAGGATGAACCTTCCGAGGAGCCCCCAGGCACAACACGGGGCGCC
3841 GCACGCCGTGGCATATTAGGGCCGCGGTGTGCACCCGTGGAGTGGCTAAGGCCGGTGG
CGTGCAGCACCGTATAAAATCCGGGCCACACGTGGGACCTCACCGATTCCGCCACCT
3901 CTTTATCCCTGTGGAGAACCTAGAGACAACCATGAGGTCCCCGGTGTACGGATAACTC
GAAATAGGGACACCTCTGGATCTGTGGTACTCCAGGGCACAAGTGCCTATTGAG



FIG. 62G

3961 CTCTCCACCAGTAGTGCCCCAGAGCTTCCAGGTGGCTACCTCCATGCTCCCACAGGCAG
GAGAGGTGGTCATCACGGGTCTCGAAGGTCCACCGAGTGGAGGTACGAGGGTGTCCGTC
4021 CGGCAAAAGCACCAAGGTCCGGCTGCATATGCAGCTCAGGGCTATAAGGTGCTAGTACT
GCCGTTTCGTGGTTCAGGGCCGACGTATACTGAGTCCCATAATTCCACGATCATGA
4081 CAACCCCTCTGTTGCTGCAACACTGGGCTTGGTGCCTACATGTCAAGGCTCATGGGAT
GTTGGGAGACAAACGACGTTGACCCGAAACCACGAATGTACAGGTTCCGAGTACCCCTA
4141 CGATCCTAACATCAGGACCGGGGTGAGAACAAATTACCACTGGCAGCCCCATACGTACTC
GCTAGGATTGTAGTCCCTGGCCCCACTCTTGTAAATGGTGACCGTCGGGGTAGTGCATGAG
4201 CACCTACGGCAAGTTCTTGCCGACGGGGGTGCTCGGGGGCGTTATGACATAATAAT
GTGGATGCCGTTCAAGGAACGGCTGCCGCCCACGAGCCCCCGCGAATACTGTATTATTA
4261 TTGTGACGAGTGCACCTCCACGGATGCCACATCCATCTTGGGCATCGGCACGTGTCCTTGA
AACACTGCTCACGGTGAGGTGCCTACGGTAGGTAGAACCCGTAGCCGTACAGGAAC
4321 CCAAGCAGAGACTGCAGGGGGCAGACTGGTTGCTCGCCACCGCCACCCCTCCGGGCTC
GGTCGTCCTGACGCCCGCTGACCAACACGAGCGGTGGCGTGGGGAGGCCGAG
4381 CGTCACTGTGCCCATCCAACATCGAGGAGGTTGCTCTGTCACCACCGGAGAGATCCC
GCAGTGACACGGGGTAGGGTTAGGTTAGCTCCTCAACGAGACAGGTGGTGGCCTCTAGGG
4441 TTTTACGGCAAGGCTATCCCCCTCGAAGTAATCAAGGGGGGAGACATCTCATCTTCTG
AAAAATGCCGTTCCGATAGGGGGAGCTCATTAGTCCCCCTCTGTAGAGTAGAAAGAC
4501 TCATTCAAAGAAGAAGTGCAGCAACTGCCGAAAGCTGGTCGCATTGGGCATCAATGC
AGTAAGTTCTTCTTCAGCCTGCTTGAGCGCGGTTTGACCAAGCGTAACCGTAGTTACG
4561 CGTGGCCTACTACCGCGGTCTTGACGTGTCGTATCCCACCGAGCGGGCATGTTGTCG
GCACCGGATGATGGCGCCAGAACTGCACAGGAGTAGGGCTGGTCGCCGCTACAACAGCA
4621 CGTGGCAACCAGATGCCCTCATGACCGGCTATACCGGCACCTGACTCGGTGATAGACTG
GCACCGTTGGCTACGGGAGTACTGGCGATATGGCGCTGAAGCTGAGCCACTATCTGAC
4681 CAATACGTGTGTCACCCAGACAGTCGATTTCAGCCTTGACCTTACCTTACCAATTGAGAC
GTTATGCACACAGTGGGTCTGTCAGCTAAAGTCGGAACCTGGGATGGAAGTGGTAACCTG
4741 AATCACGCTCCCCCAGGATGCTGTCTCCCGACTCAACGTCGGGGCAGGACTGGCAGGGG
TTAGTGCAGGGGGCTCTACGACAGAGGGCGTAGTTGCAAGCCCCGTCTGACCGTCCCC
4801 GAAGCCAGGCATCTACAGATTGTCAGCAGGCTGCTGGCACCAGGGGAGCGCCCTCCGG
CTTCGGTCCGTAGATGTCTAAACACCGTGGCCCTCGCGGGGAGGCCGTAAGCTGAG
4861 GTCCGTCTCTGTGAGTGCTATGACGCAAGGCTGTGCTTGGTATGAGCTCACGCCGCCGA
CAGGCAGGAGACACTCACGATACTGCGTCCGACACGAACCATACTCGAGTGCAGGGCGGCT
4921 GACTACAGTTAGGCTACGAGCGTACATGAACACCCCGGGGCTTCCGTGTCAGGACCA
CTGATGTCAATCGATGCTCGCATGTACTTGTGGGGCCCCGAAGGGCACACGGTCTGGT
4981 TCTTGAATTGGGAGGGCGTCTTACAGGCCTCACTCATATAGATGCCACTTCTATC
AGAACTTAAACCCCTCCCGAGAAATGTCCGGAGTGAAGTATCTACGGGTGAAAGATAG
5041 CCAGACAAAGCAGAGTGGGAGAACCTCCTTACCTGGTAGCGTACCAAGCCACCGTGTG
GGTCTGTTCTCACCCCTTGGAAAGGAATGGACCATCGCATGGTCTGGCACAC
5101 CGCTAGGGCTCAAGCCCCCTCCCCCATCGTGGGACAGATGTGGAAGTGTGTTGATTGCC
GCGATCCCAGTTGGGGAGGGGTAGCACCCTGGTCTACACCTTACAAACTAAGCGGA
5161 CAAGCCACCCCTCCATGGGCCAACACCCCTGCTATACAGACTGGCGCTGTTAGAATGA
GTTGGGGTGGGAGGTACCCGGTTGTGGGGACGATATGTCTGACCCCGACAAGTCTTACT
5221 AATCACCCCTGACGCACCCAGTCACCAAATACATCATGACATGCTGCGGCCGACCTGG
TTAGTGGGACTGCGTGGGTCAAGTGGTTATGTAGTACTGTACGTACAGCCGGCTGGACCT



FIG. 62H

5281 GGTGTCACGAGCACCTGGGTGCTCGTGGCGGCGTCTGGCTGCTTGGCCGCGTATTG
CCAGCAGTGTGCTGGACCCACGAGCAACCGCCGCAAGGACCGACGAAACCGGGCGCATAAC
5341 CCTGTCAACAGGGCTGCGTGGTCAAGTGGGCAGGGTCGTCAGGCTCCAGGAAAGCCGGCAAT
GGACAGTTGTCGACGCACCAAGTATCACCCGTCAGAAGAACAGGCCCTCGGCCGTTA
5401 CATACTGACAGGGAAAGTCCTCTACCGAGAGTCGATGAGATGGAAGAGTGCTCTCAGCA
GTATGGACTGTCCCTCAGGAGATGGCTCTCAAGCTACTCACCTCTCACGAGAGTCGT
5461 CTTACCGTACATCGAGCAAGGGATGATGCTCGCCAGCAGTTCAAGCAGAAGGCCCTCGG
GAATGGCATGTAGCTCGTCCCTACTACGAGCGGCTCGTCAAGTTCGTCTCCGGGAGCC
5521 CCTCTGAGACCGCGTCCCGTCAGGCAGAGGTTATCGCCCTGCTGTCCAGACCAACTG
GGAGGACGTCTGGCGCAGGGCAGTCGTCCATCAAGTACAGGGGACGACAGGTCTGGTTGAC
5581 GCAAAAACTCGAGACCTCTGGCGAAGCATATGTGAACCTCATCAGTGGGATACAATA
CGTTTTGAGCTCTGAAAGACCCGCTTCGTATACACCTGAAGTAGTCACCCATGTTAT
5641 CTTGGCGGGCTTGTCAACGCTGCCCTGGTAACCCGCCATTGCTCATTGATGGCTTTAC
GAACCGCCGAACAGTTGCGACGGACCATGGGGCGTAACGAAGTAACCTACCGAAAATG
5701 AGCTGCTGTCACCAGCCCCTAACCAACTAGCCAAACCCCTCTTCAACATATTGGGGG
TCGACGACAGTGGTCGGGTATTGGTATCGGTTGGAGGAAGTTGTATAACCCCCC
5761 GTGGGTGGCTGCCAGCTCGCCGCCCCGGTGCCTACTGCCTTGTGGCGCTGGCTT
CACCCACCGACGGGTCGAGCGGGGGGGCACGGCGATGACGAAACACCCCGGACCGAA
5821 AGCTGGCGCCGCCATCGCAGTGTGGACTGGGAAGGTCTCATAGACATCCTGCAAG
TCGACCGCCGGTAGCCGTACAACCTGACCCCTCCAGGAGTATCTGTAGGAACGTCC
5881 GTATGGCGGGCGTGGCGGGAGCTTGTGGCATTCAAGATCATGAGCGGTGAGGTCCC
CATACCGCGCCCGCACCGCCCTCGAGAACACCGTAAGTTAGTACTCGCCACTCCAGGG
5941 CTCCACGGAGGACCTGGTCAATCTACTGCCGCCATCCTCTGCCCGGAGGCCCTCGTAGT
GAGGTGCCTCTGGACCAGTTAGATGACGGCGGTAGGAGAGCGGGCCTCGGGAGCATCA
6001 CGGCGTGGTCTGTGCAAGCAATACTGCGCCGGCACGTTGGCCCGGGGAGGGGGCAGTGCA
GCCGCACCAAGACACGTCGTTATGACCGGGCGTGCAACCGGGCCGCTCCCCGTCACGT
6061 GTGGATGAACCGGCTGATAGCCTTCGCTCCGGGGAACATGTTCCCCCACGCACTA
CACCTACTTGGCGACTATCGGAAGCGGAGGGCCCCCTGGTACAAAGGGGTGCGTGAT
6121 CGTGCAGGAGAGCGATGCACTGCCCGCGTCACTGCCATACTCAGCAGCCTCACTGTAAC
GCACGGCCTCTGCTACGTCGACGGCGCAGTGACGGTATGAGTCGTCGGAGTGACATTG
6181 CCAGCTCCTGAGGCAGTCACCGAGTGGATAAGCTGGAGTGTACCACTCCATGCTCCGG
GGTCGAGGACTCCGCTGACGTGGCACCTATTGAGCCTCACATGGTGGAGTACGAGGCC
6241 TTCTGGCTAAGGGACATCTGGGACTGGATATGCGAGGTGTTGAGCGACTTTAACACCTG
AAGGACCGATTCCCTGTAGACCCCTGACCTATACGCTCCACAACACTCGCTGAAATTCTGGAC
6301 GCTAAAAGCTAAGCTCATGCCACAGCTGCCCTGGATCCCTTGTGTCCTGCCAGCGCGG
CGATTTTCGATTGAGTACGGTGTGACGGACCCCTAGGGAAACACAGGACGGTCGCGCC
6361 GTATAAGGGGGCTGGCGAGTGGACGGCATCATGCACACTCGCTGCCACTGTGGAGCTGA
CATATTCCCCCAGACCGCTCACCTGCCGTAGTACGTGTGAGCGACGGTGACACCTCGACT
6421 GATCACTGGACATGTCAAAACGGGACGATGAGGATCGTCGGTCTAGGACCTGCAGGAA
CTAGTGACCTGTACAGTTTGCCTGCTACTCCTAGCAGCCAGGATCCTGGACGTCCTT
6481 CATGTGGAGTGGGACCTTCCCCATTAAATGCCTACACCAACGGGCCCTGTACCCCCCTTCC
GTACACCTCACCCCTGGAAAGGGTAATTACGGATGTGGTGCCGGGACATGGGGGGAAAGG
6541 TGCGCCGAACACTACACGTTCGCGTATGGAGGGTGTGCAGAGGAATATGTGGAGATAAG
ACGGCGCTTGATGTGCAAGCGCGATAACCTCCCACAGACGTCCTTACACCTCTATT



FIG. 621

6601 GCAGGTGGGGACTTCACTACGTGACGGGTATGACTACTGACAATCTAAATGCCGTG
CGTCCACCCCTGAAGGTGATGCACTGCCATACTGATGACTGTTAGAGTTACGGGCAC
6661 CCAGGTCCCATCGCCCGAATTTCACAGAATTGGACGGGTGCGCCTACATAGGTTGC
GGTCAGGGTAGCGGGCTTAAAAGTGTCTAACCTGCCACCGGATGTATCCAAACG
6721 GCCCCCCCTGCAAGCCCTGCTCGGGAGGAGGTATCATTAGAGTAGGACTCCACGAATA
CGGGGGGACGTTGGGAACGACGCCCTCCATAGTAAGTCTCATCCTGAGGTGCTTAT
6781 CCCGGTAGGGTCGAATTACCTTGCAGGCCGAACCGGACGTGGCGTGTGACGTCCAT
GGGCCATCCCAGCTTAATGGAACGCTCGGCTTGGCCTGCACCGCACAACTGCAGGTA
6841 GCTCACTGATCCCTCCATATAACAGCAGAGGGCGGCCGGCGAAGGTTGGCGAGGGGATC
CGAGTGAAGGGAGGGTATATTGCGTCCGCCGGCGCTTCAACCGCTCCCTAG
6901 ACCCCCCCTGTGGCCAGCTCCTCGGCTAGCCAGCTATCCGCTCCATCTCAAGGCAAC
TGGGGGGAGACACCGGTCGAGGAGCCATCGGTCGATAGGCAGGTAGAGAGTTCCGTTG
6961 TTGCACCGCTAACCATGACTCCCCTGATGCTGAGCTCATAGAGGCCAACCTCCTATGGAG
AACGTGGCGATTGGTACTGAGGGACTACGACTGAGATCTCCGTTGGAGGATACCTC
7021 GCAGGAGATGGCGGCAACATCACCAAGGGTTGAGTCAGAAAACAAAGTGGTGATTCTGGA
CGTCCTCTACCCGCCGTTGAGTGGTCCAACTCAGTCTTTGTTCAACCATAAGACCT
7081 CTCCCTCGATCCGCTTGTGGCGAGGAGGACGAGCAGGGAGATCTCGTACCCGAGAAAT
GAGGAAGCTAGGCAGAACCCGCCCTCCTGCTGCCCTAGAGGCATGGCGTCTTA
7141 CCTGCGGAAGTCTCGGAGATTGCCAGGCCCTGCCGTTGGCGCGCCGGACTATAA
GGACGCCCTCAAGGCCCTAACGGGGTCCGGGACGGCAAAACCGCGCCGGCCTGATATT
7201 CCCCCCGCTAGTGGAGACGTGGAAAAAGCCGACTACGAACCACTGTGGTCCATGGCTG
GGGGGGCGATCACCTCTGCACCTTTTGGGCTGATGTTGGTGGACACCAAGGTACCGAC
7261 TCCGCTTCCACCTCAAAGTCCCCTCCTGTGCCTCCGCCCTCGGAAGAAGCGGACGGTGGT
AGGCAGAGGTGGAGGTTCAAGGGAGGACACGGAGGCGAGCCTTCTGCCACCA
7321 CCTCACTGAATCAACCCATCTACTGCCTGGCGAGCTGCCACCAAGAAGCTTGGCAG
GGAGTGAATTGGGATAGATGACGGAACCGGCTCGAGCGGTGGTCTCGAAACCGTC
7381 CTCCCTCAACCTCCGGCATTACGGCGACAATACGACAACATCCTCTGAGCCGCCCTTC
GAGGAGTTGAAGGCCGTAATGCCGCTGTTATGCTGTTAGGAGACTCGGGGGGGAAAG
7441 TGGCTCCCCCCCCGACTCCGACGCTGAGTCTATTCCCTCATGCCCTGGAGGGGGGA
ACCGACGGGGGGCTGAGGCTGCACTCAGGATAAGGAGGTACGGGGGGGACCTCCCCCT
7501 GCCTGGGATCCGATCTAGCAGGGCTATGGTCAACGGTCAGTAGTGGACAGC
CGGACCCCTAGGCCTAGAACGCTGCCCAGTACAGTGGCCAGTCATCACTCCGGTTGCG
7561 GGAGGATGCTGTGCTGCTCAATGTTACTCTTGGACAGGCGCACTCGTACCCCGTG
CCTCCTACAGCACACGACGAGTTACAGAACCTGTCGCGTGGAGCAGTGGGGCAC
7621 CGCCCGGAAAGAACAGAAACTGCCATCAATGCACTAAGCAACTCGTTGCTACGTACCA
GGGGCGCCTCTTGTCTTGTGACGGGTAGTTACGTGATTGCTGAGCAACGATGCACTGGT
7681 CAATTGGTATTCCACCACTCACGCAGTGCTGCAAAAGGAGAAGAAAGTCACATT
GTAAACACATAAGGTGGTGGAGTGCCTCACGAACGGTTCCGTTCTTCAGTGTAA
7741 TGACAGACTGCAAGTCTGGACAGCATTACCAAGGACGTACTCAAGGAGGTTAAAGCAGC
ACTGCTGACGTTCAAGACCTGTCGGTAATGGTCTGATGAGTCCCTCAAATTGTCG
7801 GGCCTAAAGTGAAGGCTAACTGCTATCCGTAGAGGAAGGCTTGAGCCTGAGC
CCGAGTTTCACTCCGATTGAACGATAGGCATCTCCCTGAAACGTCGGACTGCAGGGGG
7861 AACTCAGCCAATCCAAGTTGGTATGGGCAAAAGACGTCGGTTGCCATGCCAGAAA
TGTGAGTCGGTTAGGTTCAAACCAATACCCGTTCTGAGGCAACGGTACGGTCTT



FIG. 62J

7921 GGCGTAAACCACATCAACTCCGTGTGAAAGACCTCTGGAAGACAATGTAACACCAAT
CCGGCATTGGGTGTAGTTGAGGCACACCTTCTGGAAGACCTCTGTTACATTGTGGTTA
7981 AGACACTACCATCATGGCTAAGAACGAGGTTTCTGCGTTAGCCTGAGAAGGGGGTCG
TCTGTGATGGTAGTACCGATTCTGCTCCAAAAGACGCAAGTCGGACTCTTCCCCCAGC
8041 TAAGCCAGCTCGTCTCATCGTGTCCCCGATCTGGCGTGCACGCGTGTGCGAAAAGATGGC
ATTCGGTGAGCAGAGTAGCACAAGGGCTAGACCCGACGCGCACACGCTTTCTACCG
8101 TTTGTACGACGTGGTACAAAGCTCCCTGGCGTGTGGAAAGCTCTACGGATTCA
AAACATGCTGCACCAATGTTCGAGGGGAACCGGACTACCCCTGAGGATGCCTAAGGT
8161 ATACTCACCAAGGACAGCGGGTTGAATTCTCGTGCAAGCGTGGAAAGTCCAAGAAAACCC
TATGAGTGGTCTGTCGCCAACTTAAGGAGCACGTTGACCTCAGGTTCTTTGGGG
8221 AATGGGTTCTCGTATGATAACCGCTGCTTGACTCCACAGTCAGTGAGAGCGACATCCG
TTACCCCAAGAGCATACTATGGCGACGAAACTGAGGTGTCAGTGACTCTGCTGTAGGC
8281 TACGGAGGAGGCAATCTACCAATGTTGACCTCGACCCCCAAGCCCGTGGCCATCAA
ATGCCCTCCCGTGTAGATGGTACAACACTGGAGCTGGGGTTCGGCGACCGGTAGTT
8341 GTCCCTCACCGAGAGGCTTTATGTTGGGGCCCTTACCAATTCAAGGGGGAGAACTG
CAGGGAGTGGCTCTCGAAATACAACCCCGGGAGAATGGTTAAGTCCCCCTCTGAC
8401 CGGCTATCGCAGGTGCCGCGAGCGCGTACTGACAACTAGCTGTGGTAACACCCCTAC
GCCGATAGCGTCCACGGCGCGCTCGCCGATGACTGTTGATGACACCATGTTGGAGTG
8461 TTGCTACATCAAGGCCGGGAGCCTGTCAGGCCAGGGCTCCAGGACTGCACCATGCT
AACGATGTAGTTCCGGGCCGTCGGACAGCTGGCGTCCAGGACTGACGTGGTACGA
8521 CGTGTGTCGACGACTTAGTCGTTATCTGTGAAAGCGCGGGGTCAGGAGGACGCCG
GCACACACCGCTGCTGAATCAGCAATAGACACTTCGCGCCCCCAGGTCTCCTGCGCCG
8581 GAGCCTGAGAGCCTCACGGAGGCTATGACCAGGTACTCCGCCCTGGGACCCCCC
CTCGGACTCTCGGAAGTGCCTCGATACTGGTCCATGAGGCGGGGGGACCCCTGGGGGG
8641 ACAACCAGAATACGACTTGGAGCTATAACATCATGCTCCTCAAACGTGTCAGTCGCCA
TGTGGTCTTATGCTGAACCTCGAGTATTGAGTACGAGGAGGTGACAGTCAGCGGGT
8701 CGACGGCGCTGAAAGAGGGTCTACTACCTCACCCGTGACCCCTACAACCCCCCTCGCGAG
GCTGCCGCGACCTTCTCCAGATGATGGAGTGGCACTGGGATGTTGGGGGAGCGCTC
8761 AGCTGCGTGGAGACAGCAAGACACACTCCAGTCAGTCATTCTGGCTAGGCAACATAATCAT
TCGACGCACCCCTCTGCTGTTCTGAGGTCAGTTAAGGACCGATCGTGTATTAGTA
8821 GTTGGCCCTACACTGTGGCGAGGATGATACTGATGACCCATTCTTACGTCCTTAT
CAAACGGGGGTGTGACACCCGCTCTACTATGACTACTGGTAAAGAAATCGCAGGAATA
8881 AGCCAGGGACCAGCTGAACAGGCCCTGATTGCGAGATCTACGGGCGCTGCTACTCCAT
TCGGTCCCTGGTCGAACCTGTCCGGAGCTAACGCTCTAGATGCCCGAGCATGAGGTA
8941 AGAACCACTGATCTACCTCAATCATTCAAAGACTCCATGGCCTCAGCGCATTTCACT
TCTTGGTGAACTAGATGGAGGTTAGTAAGTTCTGAGGTACCGGAGTCGCGTAAAGTA
9001 CCACAGTTACTCTCCAGGTGAAATTAAATAGGGTGGCCGATGCTCAGAAAACCTGGGGT
GGTGTCAATGAGAGGTTCACTTTAATTATCCCACCGCGTACGGAGTCCTTGAACCCCA
9061 ACCGCCCTGCGAGCTGGAGACACCGGGCCGGAGCGTCCGCGCTAGGCTTCTGGCCAG
TGGCGGGAACGCTCGAACCTCTGTTGGCCCCGGCTCGCAGGCGCAGTCAGGACCGGTC
9121 AGGAGGCAGGGCTGCCATATGTGGCAAGTACCTCTCAACTGGGAGTAAGAACAAAGCT
TCCTCCGTCCGACGGTATAACACCGTTATGGAGAAGTTGACCCGTATTCTGTTTCGA
9181 CAAAC
GTTG





FIG. 77

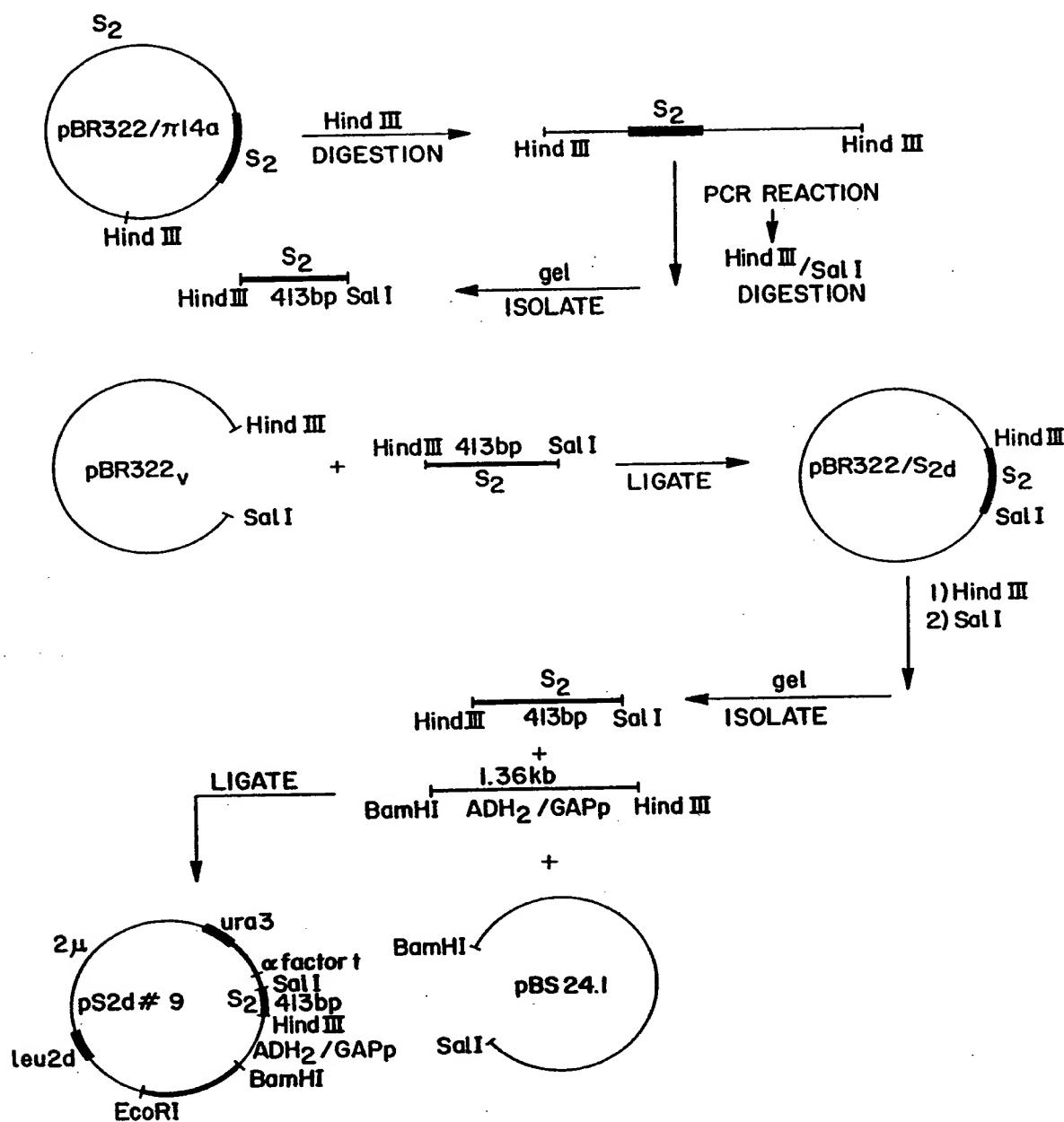




FIG. 78

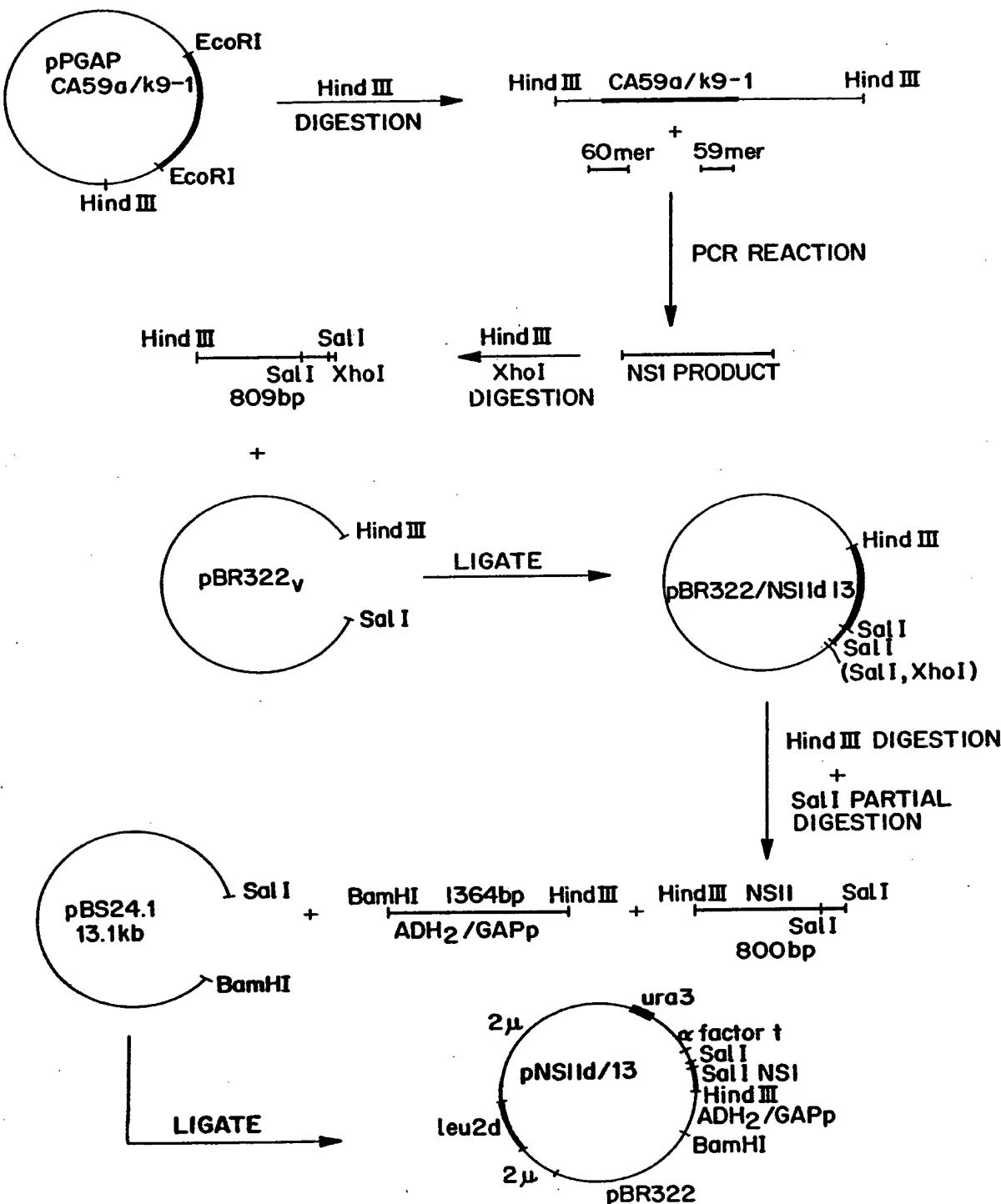




FIG. 79A

2 AlaValAspPheIleProValGluAsnLeuGluThrThrMetArgSerProValPh Thr
 GCGGTGGACTTATCCCTGTGGAGAACCTAGAGACAAACCATGAGGTCCCCGGTGGTCA
 CGCCACCTGAAATAGGGACACCTCTGGATCTCTGGTGGTACTCCAGGGGCCACAAGTGC
 29 MAE1, 40 NLA111, 43 MNLL, 45 AVA2 NLA1V SAU96, 49 NCII SC
 RF1, 50 HPA11,
 62 AspAsnSerSerProProValValProGlnSerPheGlnValAlaHisLeuHisAlaPro
 GATAACTCCTCTCCACCAGTAGTGCCCCAGAGCTTCCAGGTGGCTCACCTCCATGCTCCC
 CTATTGAGGAGAGGTGGTCATCACGGGTCTCGAAGGTCCACCGAGTGGAGGTACGAGGG
 69 MNLL, 83 BSP1286, 92 ALU1, 97 ECOR11 SCRF1, 106 HPH, 109
 MNLL, 113 NLA111,
 122 ThrGlySerGlyLysSerThrLysValProAlaAlaTyrAlaAlaGlnGlyTyrLysVal
 ACAGGCAGCGGCAAAAGCACCAAGGTCCCAGGCTGCATATGCAGCTCAGGGCTATAAGGTG
 TGTCCCGTCCGCGTTTGTGGTCCAGGGCCACGTATACGTCGAGTCCCGATATTCCAC
 126 BBV FNU4H1, 127 NSPB11, 129 FNU4H1, 145 AVA2 NLA1V SAU96
 , 148 NCII SCRF1, 149 HPA11, 152 BBV FNU4H1, 156 NDE1, 161 B
 BV FNU4H1, 163 ALU1, 165 DDE1,
 182 LeuValLeuAsnProSerValAlaAlaThrLeuGlyPheGlyAlaTyrMetSerLysAla
 CTAGTACTCAACCCCTCTGTTGCTGCAACACTGGGCTTGCTTACATGTCCAAGGCT
 GATCATGAGTTGGGGAGACAAACGACGTGTGACCCGAAACCACGAAATGTACAGGTTCCGA
 182 MAE1, 184 SCAl, 185 RSA1, 195 MNLL, 203 BBV FNU4H1, 228
 AFL111 NSPC1, 229 NLA111,
 242 HisGlyIleAspProAsnIleArgThrGlyValArgThrIleThrThrGlySerProIle
 CATGGGATCGATCCTAACATCAGGACGGGGGTGAGAACAAATTACCACTGGCAGCCCCATC
 GTACCCCTAGCTAGGATTGTAGTCTGGCCCACTCTGTTAATGGTACCGTGGGGTAG
 242 NLA111, 246 BIN1, 247 MBO1 SAU3A, 248 CLAl, 249 TAQ1, 25
 1 BIN1 MBO1 SAU3A, 264 AVA2 SAU96, 267 HPA11 NCII SCRF1, 271
 HPH, 291 BBV FNU4H1,
 302 ThrTyrSerThrTyrGlyLysPheLeuAlaAspGlyGlyCysSerGlyGlyAlaTyrAsp
 ACGTACTCCACCTACGGCAAGTTCTGCGACGGCGGGTGCCTGGGGGGCGCTTATGAC
 TGCATGAGGTGGATGCCGTTCAAGAACGGCTGCCACGAGCCCCCGCGAATACTG
 302 MAE2, 304 RSA1, 340 BSP1286 HGIA, 343 AVA1, 350 HAE11, 3
 51 HHAl,
 362 IleIleIleCysAspGluCysHisSerThrAspAlaThrSerIleLeuGlyIleGlyThr
 ATAATAATTGTGACGAGTGCCACTCCACGGATGCCACATCCATCTGGCATTGGCACT
 TATTATTAAACACTGCTCACGGTGAGGTGCTACGGTGTAGGTAGAACCCGTAACCGTGA
 372 MAE3, 391 FOK1, 392 SFAN1, 399 FOK1,
 422 ValLeuAspGlnAlaGluThrAlaGlyAlaArgLeuValValLeuAlaThrAlaThrPro
 GTCCTTGACCAAGCAGAGACTGCAGGGCGAGACTGGTTGTGCTGCCACCGCCACCCCT
 CAGGAACCTGGTCTCTGACGCCCGCTCTGACCAACACGAGCGGTGGCGGTGGGGA
 431 TTHIII2, 435 ALWN1, 461 BSP1286 HGIA, 479 MNLL,



FIG. 79B

482 ProGlySerValThrValProHisProAsnIleGluGluValAlaLeuS rThrThrGly
 CCGGGCTCCGTCACTGTGCCCCATCCCAACATCGAGGAGGTTGCTCTGTCCACCACCGGA
GGCCCGAGGCAGTGACACGGGTAGGGTTAGCTCCAAACGAGACAGGTGGTGGCCT

482 HPA11 NC11 SCRF1, 484 BAN11 BSP1286, 485 NLA1V, 491 MAE3
 , 497 BSP1286, 503 FOK1, 513 TAQ1, 515 MN11, 518 MN11, 537 H
 PA11,

542 GluIleProPheTyrGlyLysAlaIleProLeuGluValIleLysGlyGlyArgHisLeu
 GAGATCCCTTTTACGGCAAGGCTATCCCCCTCGAAGTAATCAAGGGGGGAGACATCTC
CTCTAGGGAAAATGCCGTTCCGATAGGGGAGCTTCATTAGTCCCCCTCTGTAGAG

543 XHO2, 544 BIN1 MB01 SAU3A, 571 MN11, 573 TAQ1,

602 IlePheCysHisSerLysLysLysCysAspGluLeuAlaAlaLysLeuValAlaLeuGly
 ATCTCTGTCAATTCAAAGAAGAAGTGCAGCAACTGCCGCAAAGCTGGTGCATTGGGC
TAGAAGACAGTAAAGTTCTTCTACGCTGTTGAGCGCGTTTCGACCAGCGTAACCCG

603 MB011, 619 MB011, 638 FNU4H1, 645 ALU1, 660 SFAN1,

662 IleAsnAlaValAlaTyrTyrArgGlyLeuAspValSerValIleProThrSerGlyAsp
 ATCAATGCCGTGGCCTACTACCGCGGTCTTGACGTGTCATCCCGACCAGCGGGCGAT
TAGTTACGGCACCGGATGATGGCGCCCAGAACTGCACAGGCAGTAGGGCTGGTCGCCGCCTA

672 HAE1, 673 HAE111, 682 NSPB11 SAC2, 683 THA1, 693 AFL111
 MAE2, 703 FOK1, 712 NSPB11, 714 FNU4H1,

722 ValValValValAlaThrAspAlaLeuMetThrGlyTyrThrGlyAspPheAspSerVal
 GTTGTGCGTGGCAACCGATGCCCTCATGACCGGCTATACCGGCAGCTTCGACTCGGTG
CAACAGCAGCACCGGTTGGGTACGGGAGTACTGGCCATATGGCCGCTGAAGCTGAGCCAC

740 SFAN1, 745 MN11, 748 NLA111, 753 HPA11, 762 HPA11, 771 T
 AQ1, 773 HINF1, 778 HPH,

782 IleAspCysAsnThrCysValThrGlnThrValAspPheSerLeuAspProThrPheThr
 ATAGACTGCAATACGTGTCACCCAGACAGTCGATTTCAGCCTTGACCCCTACCTTCACC
TATCTGACGTTATGCACACAGTGGGTCTGTCAGCTAAAGTCGGAACTGGGATGGAAGTGG

794 AFL111 MAE2, 800 MAE3, 801 HPH, 813 TAQ1, 837 HPH,

842 IleGluThrIleThrLeuProGlnAspAlaValSerArgThrGlnArgArgGlyArgThr
 ATTGAGACAATCACGCTCCCCAAGATGCTGTCTCCCGACTCAACGTCGGGCAGGACT
TAACCTGTTAGTGCGAGGGGGTTCTACGACCAGAGGGGTGAGTTGCAGCCCCGTCCTG

866 SFAN1, 886 MAE2,

902 GlyArgGlyLysProGlyIleTyrArgPheValAlaProGlyGluArgProSerGlyMet
 GGCAGGGGGAAGCCAGGCATCTACAGATTGTGGCACCGGGGGAGCGCCCTCCGGCATG
CCGTCCCCCTCGGTCCGGTAGATGTCTAAACACCCGTGGCCCCCTCGCGGGGAGGCCGTAC

914 ECOR11 SCRF1, 918 SFAN1, 934 BAN1 NLA1V, 938 HPA11 NC11
 SCRF1, 945 HAE11, 946 HHA1, 948 BGL1, 951 MN11, 954 HPA11, 9
 57 NSPC1, 958 NLA111,

962 PheAspSerSerValLeuCysGluCysTyrAspAlaGlyCysAlaTrpTyrGluLeuThr
 TTGACTCGTCCGTCCTGTGAGTGCTATGACGCAGGCTGTGCTGGTATGAGCTCACG
AAGCTGAGCAGGCAGGAGACACTCACGATACTGCGTCCGACACGAACCCATACTCGAGTGC

963 TAQ1, 965 HINF1, 976 MN11, 992 HGA1, 1003 TTHIII2, 1013
 BAN11 BSP1286 HGIA SAC1, 1014 ALU1,



FIG. 79C

1051 RSA1, 1054 NLA111, 1063 AVA1 NCII SCRF1 SMA1, 1064 HPA1
 1 NCII SCRF1, 1081 ECOR11 SCRF1,

1082 GlnAspHisLeuGluPheTrpGluGlyValPheThrGlyLeuThrHisIleAspAlaHis
 CAGGACCATCTTGAATTTGGGAGGGCGTCTTACAGGCCTCACTCATATAGATGCCAC
 GTCCTGGTAGAACCTAAACCCCTCCCGAGAAATGTCCGGAGTGAGTATATCTACGGGTG

1084 AVA2 SAU96, 1103 MNL1, 1106 AH11, 1107 HG11, 1117 HAE1
 ST11, 1118 HAE111, 1120 MNL1, 1133 SFAN1,

1142 PheLeuSerGlnThrLysGlnSerGlyGluAsnLeuProTyrLeuValAlaTyrGlnAla
 TTTCTATCCCAGACAAAGCAGAGTGGGAGAACCTCCTTACCTGGTAGCGTACCAAGCC
 AAAGATAGGGTCTGTTCGTCTACCCCTTGGAGGAATGACCATCGCATGGTTCGG

1183 ECOR11 SCRF1, 1192 RSA1, 1201 DRA3,

1202 ThrValCysAlaArgAlaGlnAlaProProSerTrpAspGlnMetTrpLysCysLeu
 ACCGTGTGCGCTAGGGCTCAAGCCCCATCGTGGGACAGATGTGGAAGTGTGTTG-
 TGGCACACGCGATCCGAGTTCGGGAGGGGTAGCACCCCTGGTCTACACCTTCACAAAC

1209 HHA1, 1212 MAE1, 1215 BAN11 BSP1286, 1226 MNL1, 1239 NL
 AlV, 1240 AVA2 SAU96, 1256 TTHIII2, 1261 HINFL1,

1262 IleArgLeuLysProThrLeuHisGlyProThrProLeuLeuTyrArgLeuGlyAlaVal
 ATTCGCCTCAAGCCCACCCCTCCATGGGCAACACCCCTGCTATACAGACTGGCGCTGTT
 TAAGCGAGTTCGGGTGGGAGGGTACCCGGTTGTGGGACGATAATGCTGACCCGCGACAA

1267 MNL1, 1279 MNL1, 1282 NCO1, 1283 NLA111, 1286 SAU96, 12
 87 HAE111, 1313 HAE11, 1314 HHA1,

1322 GlnAsnGluIleThrLeuThrHisProValThrLysTyrIleMetThrCysMetSerAla
 CAGAATGAAATCACCTGACGCACCCAGTCACCAATAACATCATGACATGTCGCGCC
 GTCTTACTTACTGGGACTGCGTGGGTCACTGGTTATGTAGTACTGTACAGTACAGCGG

1332 HPH, 1339 HG11, 1349 MAE3, 1350 HPH, 1363 NLA111, 1367
 NSPC1, 1368 NLA111, 1369 AVA3 NSII, 1371 NSPC1, 1372 NLA111,
 1377 CF11 XMA3, 1378 HAE111,

1382 AspLeuGluValValThrSerThrTrpValLeuValGlyGlyValLeuAlaAlaLeuAla
 GACCTGGAGGTGCGTCACGAGCACCTGGGTGCTCGTGGCGCGTCTGGCTGCTTGGCC
 CTGGACCTCCAGCAGTCGTCGTGGACCCACGAGCAACCGCCGAGGACCGACGAAACCGG

1384 ECOR11 SCRF1, 1385 GS11, 1388 MNL1, 1394 MAE3, 1399 BSP
 1286 HGIA, 1404 ECOR11 SCRF1, 1409 BSP1286 HGIA, 1419 FNU4H1
 , 1421 AH11, 1422 HG11, 1426 ECOR11 SCRF1, 1430 BBV FNU4H1,
 1437 CF11, 1438 HAE111, 1439 FNU4H1, 1441 THA1,

1442 AlaTyrCysLeuSerThrGlyCysValValIleValGlyArgValValLeuSerGlyLys
 GCGTATTGCCTGTCACAGGGCTGCGTGGTCATAGTGGCAGGGCTGCTTGTCCGGAAAG
 CGCATAACGGACAGTTGTCCGACGCACCAAGTACACCCGTCCCAGCAGAACAGGCCCTC

1453 HINCL1, 1461 BBV FNU4H1, 1494 HPA11 NCII SCRF1, 1501 NA
 El,

1502 ProAlaIleIleProAspArgGluValLeuTyrArgGluPheAspGluMetGluGluCys
 CCGCAATCATACCTGACAGGGAAAGTCTCTACCGAGAGTTCGATGAGATGGAAGAGTGC
 GGCGTAGTATGGACTGTCCTCAGGAGATGGCTCTCAAGCTACTCTACCTTCTCACG

1502 HPA11, 1528 MNL1, 1542 TAQ1, 1553 MB011, 1558 BSP1286 H
 GIA,

1562 SerGlnHisLeuProTyrIleGluGlnGlyMetMetLeuAlaGluGlnPheLysGlnLys
 TCTCAGCACTTACCGTACATCGAGCAAGGGATGATGCTCGCCGAGCAGTCAAGCAGAAG
 AGAGTCGTGAATGGCATGTAAGTCGTTCCCTACTACGAGCGGCTGTCAGTTCGTCTC

1563 DDE1. 1576 RSA1, 1581 TAQ1, 1590 FOK1, 1594 SFAN1, 1612



FIG. 79D

TTHIIII2, 1621 HAE111 SAU96,

1622 AlaLeuGlyLeuLeuGlnThrAlaSerArgGlnAlaGluValIleAlaProAlaValGln
GCCCTCGGCCCTCCTGCAGACCGCGTCCGTCAAGGCAGAGGTTATCGCCCTGCTGTCCAG
CGGGAGCCGGAGGACGTCTGGCGCAGGGCAGTCGTCTCAAATAGCGGGGACGACAGGTC
1624 MNLL, 1628 HAE111, 1630 MNLL, 1634 PST1, 1639 TTHIIII,
1642 THAL, 1643 HGA1, 1658 MNLL,
1682 ThrAsnTrpGlnLysLeuGluThrPheTrpAlaLysHisMetTrpAsnPheIleSerGly
ACCAACTGGCAAAACTCGAGACCTCTGGCGAAGCATAATGTGGAACCTCATCAGTGGG
TGGTTGACCGTTTTGAGCTCTGGAAAGACCCGCTCGTATAACACCTGAAGTAGTCACCC
1697 AVA1 XHO1, 1698 TAQ1, 1718 NDE1,
1742 IleGlnTyrLeuAlaGlyLeuSerThrLeuProGlyAsnProAlaIleAlaSerLeuMet
ATACAATACTGGCGGGCTGTCAACGCTGCCTGGTAACCCCGCCATTGCTTCATTGATG
TATGTTATGAACCGCCGA_{AC}AGTTGCGACGGACCATTGGCGGTACGAAGTAACACTAC-
1762 HINC11, 1768 BBV FNU4H1, 1772 ECOR11 SCRF1, 1775 BSTE2,
1776 MAE3,
1802 AlaPheThrAlaAlaValThrSerProLeuThrThrSerGlnThrLeuLeuPheAsnIle
GCTTTACAGCTGCTGTCAACGCCC_{ACT}AAACCCCTCCTCTCACATA
CGAAAATGTCGACGACAGTGGTCGGGTGATTGGT_GATCGGTTGGAGGAGAAGTTGTAT
1809 ALWN1 NSPB11 FVU11, 1810 ALU1, 1811 BBV FNU4H1, 1817 MA
E3, 1818 HPH, 1836 MAE1, 1846 MNLL, 1849 MNLL, 1851 MB011,
1862 LeuGlyGlyTrpValAlaAlaGlnLeuAlaAlaProGlyAlaAlaThrAlaPheValGly
TTGGGGGGGTGGGTGGCTGCCAGCTGCCGCCGGTGGC_GTACTGCCCTTG_GGGC
AACCCCCCACC_GACGGGTCGAGC_GGGCGGGGCCACGGCGATGACGGAAACACCCG
1877 BBV FNU4H1, 1884 ALU1, 1889 FNU4H1, 1895 NC11 SCRF1, 18
96 HPA11, 1898 BAN1 NLA1V, 1901 FNU4H1, 1919 HAE11, 1920 HHA
1,
1922 AlaGlyLeuAlaGlyAlaAlaIleGlySerValGlyLeuGlyLysValLeuIleAspIle
GCTGGCTTAGCTGGCGCCGCCATCGG_GAGTGGACTGGGAAAGGTCTCATAGACATC
CGACCGAATCGACCGCGCGGGTAGCGTCACAACCTGACCCCTTC_GAGGAGTATCTGTAG
1927 DDE1, 1930 ALU1, 1934 AHA11 BAN1 HAE11 NAR1 NLA1V, 1935
HHA1, 1937 FNU4H1, 1966 AVA2 SAU96, 1969 MNLL, 1978 FOK1,
1982 LeuAlaGlyTyrGlyAlaGlyValAlaGlyAlaLeuValAlaPheLysIleMetSerGly
CTTGCAGGGTATGGCGGGCGTGGCGGGAGCTTGTGGCATTCAAGATCATGAGCGGT
GAACGTCCCATA_{CC}CGCCCGCACCGCC_GCTCGAGAACACC_GTAAGTTCTAGTACTCGCCA
1995 HHA1, 1996 THAL, 2010 BAN11 BSP1286 HGIA SAC1, 2011 ALU
1, 2021 BSM1, 2029 MB01 SAU3A, 2032 NLA111, 2039 HPH,
2042 GluValProSerThrGluAspLeuValAsnLeuLeuProAlaIleLeuSerProGlyAla
GAGGTCCCTCCACGGAGGACCTGGTCAATCTACTGCCGCATCCTCTGCCCGAGCC
CTCCAGGGGAGGTGCCTCTGGACCAGTTAGATGACGGCGGTAGGAGAGCGGGCCTCGG
2042 MNLL, 2044 AVA2 NLA1V SAU96, 2049 MNLL, 2057 MNLL, 2059
AVA2 SAU96, 2060 TTHIIII, 2062 ECOR11 SCRF1, 2083 FOK1, 208
6 MNLL, 2093 NC11 SCRF1, 2094 HPA11, 2096 NLA1V, 2097 BAN11
BSP1286, 2101 MNLL,
2102 LeuValValGlyValValCysAlaAlaIleLeuArgArgHisValGlyProGlyGluGly
CTCGTAGTCGGCGTGGTC_GTGCAAGCAATACTGCCGCCAGTGGCCCGGGAGGGG
GAGCATCAGCCGCACCAGACAC_GTGCTTATGAC_GCCGGCGTGC_GAAACCGGGCCGCTCCCC
2123 BBV FNU4H1, 2134 HHA1, 2136 MAE1, 2137 HPA11, 2142 MAE2
, 2147 HAE111 SAU96, 2149 AVA1 NC11 SCRF1 SMA1, 2150 HPA11 N



FIG. 79E

CII SCRF1, 2156 MNLL,

2162 AlaValGlnTrpMetAsnArgLeuIleAlaPheAlaSerArgGlyAsnHisValSer
GCAGTGCAGTGGATGAACCGGCTGATAGCCTTCGCCTCCGGGGAAACCATGTTCCCC
CGTCACGTCACCTACTTGGCCGACTATCGGAAGCGGAGGGCCCCCTTGGTACAAAGGGG

2172 FOK1, 2179 HPA11, 2196 MNLL, 2199 AVA1 NCII SCRF1 SMA1,
2200 HPA11 NCII SCRF1, 2205 NLAlV, 2210 NLAlII,

2222

FIG. 80A

Human 23

GlyPheAlaAspLeuMetGlyTyrIleProLeuValGlyAlaProLeuGlyGlyArgAla
1 GGCTTCGCCGACCTCATGGGTACATAACGGCTCGTCGGCCGCCCTCTGGAGGCCGTGCC
ArgAlaLeuAlaHisGlyValArgValLeuGluAspGlyValAsnTyrAlaThrGlyAsn
61 AGGGCCCTGGCGACGGGGTCCGGTTGGAAAGACGGCGTGAACATGCAAACAGGGAAC
CG A
LeuProGlyCysSerPheSerIlePheLeuLeuSerCysLeuThrValPro
121 CTTCCCTGGTTGCTCTTCTATCTTCCTACTCTGCCCTACTCTGCCCTGACCGTGCCC
GA T
AlaSerAlaTyrGlnValArgAsnSerThrGlyLeuTyrThrValThrAsnAspCysPro
181 GCTTCAGCCCTACCAAGTGGCAAACCTACGGGGCTTACCATGTCACCAATGATTGCCCCT
AsnSerSerIleValTyrGlnValAlaAspAlaIleLeuHisAlaProGlyCysValPro
241 AACTCGAGTATTGTGTACGGAGGGGGCGATGCCATCCTGCACGGCTCCGGGTGTGTCCT
C
CysValArgGluAspAsnValSerArgCysIlePheLeuValAlaThrProThrValAlaThr
301 TGGCGTTCGGAGGATAACGTTCTCGAGATGTTGGGTGCGGGTGAACCCCCACGGTGGCACC
G
LYSAspGlyLysLeuProThrThrGlnLeuArgArgHisIleAspLeuValGlySer
361 AAGGACGGCAAACCTCCCCAACAAACGGCAAGCTTCGACGTACATCGATCTGCTTGTCGGAGC
AlaThrLeuCysSerAlaLeuTyrValGlyAspLeuCysGlySerIlePheLeuValGly
421 GCCACCCCTCTGCTCGGCCCTCTAGTGGGGACCTTGCGGCCATCTTCATGTCGGT
T
GlnLeuPheThrPheSerProArgArgHisIlePheLeuValGlySerIle
481 CAACTGTTAACCTTCTCTCCAGGGCCACTGGACGGACTGCAAACGTTCATC
C



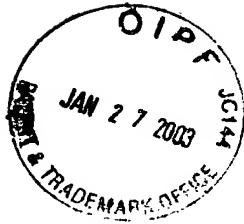


FIG. 80B

541	TYR Pro GLY HIS Ile Thr GLY HIS Ile Arg Met Ala Ile TRP Asp Phe Met Met Asn TRP Ser Pro
	TAT CCC GGC AT TAA CAC GGG TAC CCG CAT GGG AT ATG AT GAT GAA CT GGT CCC CCT
	G
601	Thr Ala Ala Leu Val Val Ala Gln Ile Leu Leu Arg Ile Pro Gln Ala Ile Leu Asp Met Ile
	ACGGCGG CATTGGCATAAACGGGTACCGCATGGCATGGATATGATGATGAACTGGTCCCCT
	G
	AG
661	Ala Gly Ala His Ile Trp Gly Val Leu Ala Gly Met Ala Tyr Phe Ser Met Val Gly Asn Ile TRP
	GCT TGG TGT GCT CACT TGG GAG TCC TGG CAG TGG CCA CAA GGC AT TGG CCA ACT TGG
	G
721	Ala Gly Val Leu Val Leu Ile Phe Ala Gly Val Ala Glu Ile Thr His Arg Thr
	GCG AAG GT CCT GG TAG TGT GCT ATT TGG CCG CTC TGG CAG TGG CAA ACC CAC CG GT ACC
	G
781	Gly Gly Ser Ala Ala Arg Ser Thr Ala Arg Gly Val Ala Ser Leu Phe Thr Pro Gly Ala Arg
	GGGGAAACTGGCCAGCCAGGGCTGGAGTTGGCTAGTCTCTACACCAGGGCTAGG
	C
	T
841	Gln Asn Ile Gln Ile Asn Thr Asn Gly Ser Thr His Ile Asn Ser Thr Ala Leu Asn
	CAG AAC AT CCAG CT GAT CAAC ACCAACGGCAGTTGGCACATCAATTAGTACGGCCTTGAAAC
	AT
901	Cys Asn Asp Ser Leu Thr Thr Gly Triplex Val Arg Leu Phe Thr Ile Ser His Lys Phe Asn
	TGCA AT GAC AGCC TTACCCGGCTTACCCGAGGTAGCGGGCTTTAGCGGT
	A
961	Ser Ser Gly Cys Pro Glu Arg Leu Ala Ser Cys Arg Pro Leu Thr Asp Phe Ala Gln
	TCT TCA GGG CT GT TCC CGAGGT TGG CCA GCCC TCA CGG ATT TTG CCA CGG
	G
	A

FIG. 81A

Human 27

GlyPheAlaAspLeuMetGlyTyrIleProLeuValGlyAlaProLeuGlyGlyAlaAla
1 GGCTTCGGCGACCTCATGGGTACATTCCGCTCGGGCTCCTCTGGGGCGTGGCC

ArgAlaLeuAlaLysGlyValArgValLeuGluAspGlyValAsnTyRAlaThrGlyAsn
61 AGGGCCCTGGCCATGGGTCCGGTTCTGGAAAGACGGCGTGAACATGGCAACAGGGAAC

LeuProGlyCysSerPheSerIlePheLeuLeuAlaLeuSerCysLeuThrValPro
121 CTTCCCTGGTTGCTCTTCTATCTTCTGGCTCGCTCTGCTTGCTGACCGTGCCC

AlaSerAlaTyrGlnValArgAsnSerSerGlyIleTerThrIleAsnAspCysPro
181 GCATCGGCCTACCAAGTACCCAACTCCTGGGCAATTACATGTCACCAATGATGCCC

AsnSerSerIleValTyrGluThrAlaAspThrIleLeuHisSerProGlyCysValPro
241 AATTGAGTATTGGTGTACGAGACGGCGACACCATCCTACACTCTCCGGTGTGCCC
C
CysValArgGluGlyAsnAlaSerLysCystrpValProValAlaProThrValAlaThr
301 TGCCTTCGGGAGGGTAACGCCCTCGAAATGTTGGGTGCCGTAAGCTGGCCACC
G

ArgAspGlyAsnLeuProAlaThrGlnLeuArgArgHisIleAspLeuValGlySer
361 AGGGACGGCAACCTCCGGCAACCCAGCTTCGACGTACATCGATCTGCTTGCGGAGT
G G

AlaThrLeuCysSerAlaLeuTyrValGlyAspLeuCysGlySerValPheLeuValGly
421 GCCACCCCTTGCTCGGCCCTCTATGTGGGGACTTGCTCTGCTTCTGTCGGT
C

GlnLeuPheThrPheSerProArgArgHisIleAspCysAsnCysSerIle
481 CAACTGTTCACTTCTCCCCAGGGCCACTGGACAAACGCAAGATTGCAACTGCTATC
A



FIG. 81B

O 1
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Tyr Pro Gly His Ile Thr Gly His Arg Met Ala Thr Asp Met Met Asn Trp Ser Pro
541 TACCCGGCCATATAACGGACACCCATGGCATGGGATATGATGATGAACTGACTGGTCCCCCT
Thr Ala Ala Leu Val Met Ala Gln Ile Leu Leu Arg Ile Pro Gln Ala Ile Leu Asp Met Ile
601 ACAGGAGGGCTGGTAATGGCTCAGCTGGCTCAGGATCCGGAAAGCCATCTGGACATGATGATC
G
Ala Gly Ala His Thr Pro Gly Val Leu Ala Gly Ile Ala Tyr Phe Ser Met Val Gly Asn Trp
661 GCTGGTGCTCACTGGGAGTCTAGCGGCTAGCGCATAGCGTATTCTCCATGGTGGGAACCTGG
Ala Lys Val Leu Val Leu Phe Ala Gly Val Asp Ala Thr Thr Tyr Thr Thr
721 GCGAAGGTCTGGTGTGCTGCTGCTGCTGCGGGCTGATGCCATGGCACAACTTACCA
Gly Gly Asn Ala Ala Arg Thr Thr Glu Ala Leu Thr Ser Phe Phe Ser Pro Gly Ala Lys
781 GGGGGAAATGCTGCCAGGACCCACGCCAGGGCTCACCAAGTTTCAAGCCAGGGGCCCTGAA
Gln Asp Ile Gln Leu Ile Asn Thr Asp Gly Ser Thr His Ile Asn Arg Thr Ala Leu Asn
841 CAGGATATCCAGCTGATCAACACCAACGCCAGTGGCACATCAATGCCACGGCCTGAA
T
Cys Asn Ala Ser Leu Asp Thr Gly Ile Thr Val Ala Gly Leu Phe Tyr Ile Lys Phe Asn
901 TGTAATGCGAGCCCTCGACACTGGCTGGGTAGGGGGCTCTTCTATTACCAAAATTCAAC
T
G
Ser Ser Gly Cys Pro Glu Arg Met Ala Ser Cys Arg Pro Leu Ala Asp Phe Asp Glu
961 TCTTCAGGCTGCCCGAGAGGATGCCAGCTGCTGAGGGCTGCTGATTCGACCGG
C



FIG. 72M

MetThrGlyTyrThrGlyAspPheAspSerValIleAspCysSerThrCysValThrGln
4321 ATGACCGGCTATAACGGCGACTTCGACTAGCTGATAAGACTACGTTGTCACCCAG
TACTGCCGATATGCCGCTGAGCTGAGCCACTATCTGACGTTATGCCACACAGTGGTC

ThrValAspPheSerLeuAspProThrPheThrIleGluThrIleThrLeuProGlnAsp
4381 ACAGTCGATTTCAGCCTTGACCTTACCTTCACCATTTGAGACAATCACGCTCCCCAGGAT
TGTCAAGCTAAAGTCGAACTGGATGGAAGTGGTAACCTCTGTTAGTGCAGGGGGTCTTA

AlaValSerArgThrGlnArgArgGlyArgThrGlyArgGlyLysProGlyIleTerYArg
4441 GCTGCTTCCCGCACTCAACGTCGGGCAAGGACTGGCAGGGGGAAAGCCAGGCATCTACAGA
CGACAGGGCGTGAAGTGCAGCCCGTCCCTGACCCGTCGGTCCCGTAGATGCT
PheValAlaProGlyGluArgProSerGlyMetPheAspSerSerValCysGluCys
4501 TTTCGTCACCGGGGGAGCGCCCTCCGGCATGTTCGACTCGTCCGTCTGTGAGTGC
AACACCGTGGCCCTCGGGGGAGGGCTACAAAGCTGAGCAGGAGAACACTCACG

TyrAspAlaGlyCysAlaTrpTyrGluIleThrProAlaGluThrThrValArgLeuArg
4561 TATGACGCAGGCTGTGGTATGAGCTCACGGCCGGAGACATACAGTTAGGCTACGA
ATACTGGTCCGACACGAAACCATACTCGAGTGGGGGCTCTGATGTCATCCGATGCT

AlaTyrMetAsnThrProGlyLeuProValCysGlnAspHisLeuGluPheTrpGluGly
4621 GCGTACATGAACACCCGGGGCTTCCCGTGTGCAAGGACCATCTGAATTGGAGGGC
CCGATGTAAGTGTGGGGGGAGGGCACACGGTCTGGTAGAACTTAAACCTCCCG

ValPheThrGlyLeuThrHisIleAspAlaHisPheLeuSerGlnThrLysGlnSerGly
4681 GTCTTTACAGGCCCTCACTCATATAAGTGCCTACATCCCAGACAAAGCAGAGTGGG
CAGAAATGTCCGGAGTGAGTATCTACGGGTGAAAGATAGGGTCTGTTCTCACCC



FIG. 72N

4741 GluAsnLeuProTyrLeuValAlaTyrGlnAlaThrValIleCysAlaArgAlaGlnAlaPro
GAGAACCTTCCCTAACCTGGTAGCGTACCAAGCCACCGTAGGGCTCAAGGCCCT
CTCTTGGAAAGGAATGGACCATCGCATGGTGGCACACGGGATCCCGAGTCGGGA

4801 ProProSerTrpAspGlnMetTrpIleCysLeuIleArgLeuIleProThrLeuIleGly
CCCCCATCGTGGACCAGATGTGAAGTTGATTGGCTCAAGGCCACCCCTCCATGGG
GGGGTAGGCCACCCCTGGCTACACCTTCACAAACTAACCTAACAAACTAACCTAACAA

4861 ProThrProLeuIleTyrArgIleGlyAlaValGlnAsnGluIleThrLeuIleThrHisPro
CCAACACCCCTGCTATACAGACTGGGGCTGTTCAAGAATGAAATCACCCCTGACGGCACCCA
GGTTGGGGGAGCATATGCTGACCCGGACAAGTCTTACTTAAGTGGACTGGCTGGGT

4921 ValThrLysTyrIleMetThrCysMetSerAlaAspLeuGluValValThrSerThrTrp
GTCACCAAATACATCATGACATGCATGGCATGTCGGCCGACCTGGAGGTTCGTCAACGACCTGG
CAGTGGTTATGTAGTACTGTACGTACAGCCGGCTGGACCTCCAGCAGTGGCTGGACC

4981 ValLeuValGlyValLeuAlaAlaTyrCysLeuSerThrGlyCysVal
GTGCTCGTTGGGGCGCTCCTGGCTGCTTGGCCGGCTATTGGCTGTCAACAGGCTGGTG
CACGAGCAACGCCGCAAGGACCGACGAACCGGCCATAACGGACAGTGTCCGACGCAC

5041 ValIleValGlyArgValValLeuSerGlyLysProAlaIleIleProAspArgGluVal
GTCATAGTGGGCAGGGTCGTCTTGTCCGGGAAGGCCGGAAATCATACCTGACAGGGAAAGTC
CACTATCACCCGTCCAGCAGAACAGGCCCTTGGCCGGTTAGTATGGACTGTCCTTCAG

5101 LeuTyrArgGluPheAspGlnMetGluGluCysSerGlnHisLeuProTyrIleGluGln
CTCTAACCGAGAGTTCCGATGAGATGGAAAGAGTGTCTCAGGCACTTACCGTACATCGAGCAA
GAGATGGCTCAAGCTTACCTTCTCACAGAGTCGTGAAATGGCATGTAGCTCGTT



FIG. 720

GlyMetMetLeuAlaGluGlnPheLysGlnLysAlaLeuGlyLeuLeuGlnThrAlaSer
5161 GGGATGATGCTCGCCGAGGAGCTTCAGCAGGGCTCGTCAAGTTCTGGCTCTGGAGGACGCTCTGGCGCAGG
CCCTACTACGGGGCTCGTCAAGTTCTGGCTCTGGAGGACGCTCTGGAGGACGCTCTGGCGCAGG
ArgGlnAlaGluValIleAlaProAlaValGlnThrAsnTrpGlnLysLeuGluThrPhe
5221 CGTCAGGCAGAGGTATCGCCCTGCTGCTGTCAGACCAACTGGCAAAACTCGAGAACCTTC
GCAGTCCGTCTCCAATAGCGGGACGACAGGTCTGGTTGACCGGTTTGAGCTCTGGAAG
TrpAlaLysHisMetTrpAsnPheIleSerGlyIleGlnTyrLeuAlaGlyLeuSerThr
5281 TGGCGGAAGCCATATGGAAACTTCATCAGTGGATAACAATACTGGCAGACGGTACACCTATGTTATGAAACGGCCGAACAGTTGC
ACCCGGCTTCGTATAACACCTTGAAAGTAGTCACCTATGTTATGAAACGGCCGAACAGTTGC
LeuProGlyAsnProAlaIleAlaSerLeuMetAlaPheThrAlaAlaValThrSerPro
5341 CTGGCTGGTAACCCGCCATTGCTTCATTGATGGCTTTACAGCTGCTGTCACCAGGCCA
GACGGACCATGGGGGGTAACCGAAACTACCCGAAATAATGTCGACGACAGTGGTGGGT
LeuThrThrSerGlnThrLeuLeuPheAsnIleLeuGlyGlyTrpValAlaAlaGlnLeu
5401 CTAACCACTAGCCAAACCCCTCTTCACATATTGGGGGGTGGCTGGCTGCCAGGCTC
GATTGGTGTATGGTTGGAGGAAGTTGTGATAACCCCCCACCACCGACGGGTGAG
AlaAlaProGlyAlaAlaPheValGlyAlaGlyLeuAlaAlaAlaIleGly
5461 GCGCCCCGGCTACTGCCTTAGCTGGGCTGTGGCTTAGCTGGCCATCGGC
CGGGGGGGCCACGGCGATGACGGAAACACCCGGACCGAATCGACCGGGGTAGGCC



FIG. 72P

581 GlyAlaLeuValAlaPheLysIleMetSerGlyGluValProSerThrGluAspLeuVal
GGAGCTCTTGTGGCATTCAGATCATGACGGTGGTCCCTCACGGAGGACCTGGTC
CCTCGAGAACACCGTAAGTTCTAGTACTCGCCACTCCAGGGAGGTGCCTGGACCAAG

5641 AsnLeuProAlaIleLeuSerProGlyAlaLeuValValGlyValValCysAlaAla
AATCTACTGCCGCCATCCTCTGCCGGAGGCCCTCGTAGTCGGGTCTGTGCAGCA
TTAGATGACGGGGTAGGAGGGGGCTGGGAGCACAGACACTGCTGT

5701 IleLeuArgArgHisValGlyProGlyGluGlyAlaValGlnTrpMetAsnArgLeuIle
ATACTGCGCCGGCACGTTGGCCGGGGCAGTGGATGAAACGGGTGATA
TATGACGGCGCTGCAACGGGCCGCTCCCCGTCACTGTACAGTGGCCGACTAT

5761 AlaPheAlaSerArgGlyAsnHisValSerProThrHisValSerProGluSerAspAla
GCCTTCGGCTCCGGGGAAACCATGTTCCCCACGGCACTACGTGCCGTGAGAGGGATGCA
CGGAAGGGAGGGCCCCCTTGGTACAAAGGGGTGATGCCACGGCCTCTCGCTACGT

5821 AlaAlaArgValThrAlaLeuSerSerLeuThrValThrGlnLeuLeuArgArgLeu
GCTGCCCGCGTCACTGCCATACTCAGCAGGCTCACTGTAACCCAGCTCCCTGAGGGCACTG
CGACGGGGCGAGTGACGGTATGAGTCGTTGAGCTGACATGGGTGAGCTGAC



FIG. 72Q

HisGlnTrpIleSerSerGluCysThrThrProCysSerGlySerThrLeuArgAspIle
5881 CACCACTGGATAAGCTGGAGTGTACCACTCCATGCTCCGGTTCTGGCTAAGGGACATC
GTGGTACCTATTGAGCCTCACATGGTGGAGGTACGAGGCCAAGGACCGATTCCCTGTAG

TrpAspTrpIleCysGluValLeuSerAspPheLeuSerThrTrpLeuLysLeuMet
5941 TGGGACTGGATAATGCGAGGTGTTGAGCGACTTTAACGACTCTGGCTAAAGCTAACGTCATG
ACCCCTGACCTATAACGCTCCACAAACTCGCTGAAATTCTGGACCGATTTCGATTCCGAGTAC

ProGlnLeuProGlyIleProPheValSerCysGlnArgGlyTyrlsGlyValTrpArg
6001 CCACAGCTGCGCTGGATCCCGCTTGTGTTGGCCAGGGGGTATAAGGGCTCTGGCGA
GGTGTGACGGACCCTAGGGAAACACAGGACCCATTCCCCAGACCGCT

ValAspGlyIleMethionThrArgCysHisThrArgCysGlyAlaGluIleThrGlyHisValLys
6061 GTGGACGGCATCATGCAACACTCGCTGGCAACTGTGGAGCTGAGATCACTGACATGTCAA
CACCTGCCGTAGTACGTTGAGCGACGGTGACACCTCGACTCTAGTGACTGTACAGTTT

AsnGlyThrMetArgIleValAlaGlyProArgThrCysArgAsnMetTrpSerGlyThrPhe
6121 AACGGGACGATGAGGATCGTCCGGTCCAGGACCTGGACAACTGCGACTGGGACCTTC
TTGCCCTGCTACTCCTAGCAGCCAGGATCCTGGACGTCTGTACACCTCACCCCTGGAAAG

ProIleAsnAlaTyrThrThrGlyProCysThrProLeuProAlaProAsnTyrThrPhe
6181 CCCATTAAATGCTTACACCACGGGGGGGGACATGGGGAAAGGACGGGGCTGATGTGCAAG



FIG. 72R

AlaLeuTrpArgValSerAlaGluIleGluIleArgGlnValGlyAspPheHis
6241 GCGCTATGGAGGGTGTCTGCAGAGGAATATGTTGAGATAAGGCAGGTGGGACTTCCAC
CGCGATAACCTCCCCACAGACGTCCTTACACCTCTATACACCTCTATTCGGTCCACCCCTGAAGGTG

TyrValThrGlyMetThrAspAsnLeuLysCysProCysGlnValProSerProGlu
6301 TACGTGACGGGTATGACTACTGACAATCTCAAATGCCCGTGGCCAGGTCCCATCGCCCCGAA
ATGCCACTGCCATACTGACTGACTGTAGAGTTACGGGACCGGTCCAGGGTAGGGGCTT

PhePheThrGluLeuAspGlyValArgLeuHisArgPheAlaProProCysLysProLeu
6361 TTTTACAGAATTGGACGGGTGGGCCCTACATAGGTTGCGCCCCCCTGCAAGCCCTTG
AAAAGTGTCTAACCTGCCAACGGGATGTATCCAAACGGGGGACGCTTCGGGAAC

LeuArgGluGluValSerPheArgValGlyLeuHisGlutYrProValGlySerGlnLeu
6421 CTGGGGAGGGTATCATCAGAGTAGGACTCACGAAATACCCGGTAGGGTGGCTGGCAATTAA
GACGCCCTCCCTCCATAGTAAGTCTCATCCTGAGGTGCTTATGGCCATCCAGGGTTAAT

ProCysGluProAspValAlaValLeuThrSerMetLeuThrAspProSerHis
6481 CCTTGGGAGGCCAACGGGACGGCCGTGGCCGTGGTACGTCCTGCTACTGATCCCTCCAT
GGAACCGCTCGGGCTTGGCCCTGCAACGGCACAACTGCAGGTACGAGTGA
TAGGGAGGGTA

IleThrAlaGluAlaAlaGlyArgLeuAlaArgGlySerProProSerValAlaSer
6541 ATAACAGCAGAGGGGGCGGGCGGGCAAGGTTGGCGAGGGGATCACCCCCCTCTGTGGCCAGC
TATTGTCGTCTCGGGCTTGGCCCTAGTGGGGAGACACGGTGC



FIG. 72S

6601 SerSerAlaSerGlnLeuSerAlaProSerLeuLysAlaThrCysThrAlaAsnHisAsp
 TCCCTGGCTAGGCCAGCTATCCGCTTCAAGGCCAACTTGCACCGCTAACCATGAC
 AGGAGCCGATCGGTAGGATAGGCCAGGTAGAGAGTTCCGGTGAACGTGGCGATTGGTACTG

6661 SerProAspAlaGluIleGluAlaAsnLeuLeuTrpArgGlnGluMetGlyGlyAsn
 TCCCTGATGCTGAGCTCATAGAGGCCAACCTCTATGGAGGCAGGAGATGGGGGGCAAC
 AGGGACTACGACTCGAGTATCTCCGGTGGAGGATACTCCGTCCCTACCCGCCGTG

6721 IleThrArgValGluSerGluAsnLysValValIleLeuAspSerPheAspProLeuVal
 ATCACAGGGTGTGAGTCAGAAAACAAGTGGTGAATTCTGGACTCTCGATCCGCTTGTG
 TAGTGGTCCCCAACTCACTCAGTCTGTTCTGTTCTGTTCTGTTCTGTTCTGTTCTG

6781 AlaGluGluAspGluArgGluIleSerValProAlaGluIleLeuArgLysSerArgArg
 GGGGAGGAGGGAGGGAGATCTCCCTACCCCGAGAAATCCCTGGGAAGTCTCCGAGA
 CGCCTCCCTCGCTCGCCCTCTAGGGCATGGCTCTAGGGCTTAGGACGGCTCAGAGCCTCT

6841 PheAlaGlnAlaLeuProValTrpAlaArgProAspTyrAsnProProLeuValGluThr
 TTGCCAGGCCCTGCCCGTTGGCGGGACTATAACCCCCGGCTAGTGGAGAGC
 AAGCGGGTCCGGGACGGCAAACCCGGCGCCCTGATAATTGGGGGGCATCACCTCTGC

6901 TrpLysProAspTyrGluProProValValHisGlyCysProLeuProProProLys
 TGGAAAAAGCCCGACTACGAACCACCTGGTCCATGGCTGTCCGCTTCACCTCCAAAG
 ACCTTCTTCGGGCTGATGGCTTGGGACACAGGTACCGACAGGGAAAGGTGGAGGTTC

6961 SerProProValProProProArgLysLysArgThrValValLeuThrGluSerThrLeu
 TCCCCCTGCTGCCCTCCGGTGGGACGGGACGGTGGCTCCACTGAATCAACCCCTA
 AGGGGAGGACACGGAGGGAGGCCCTCTCGCCTGCCACCCGGAGTGACTTAGTGGGAT



FIG. 72T

SerThrAlaLeuAlaGluLeuAlaThrArgSerPheGlySerSerThrSerGlyIle
7021 TCTACTGCCCTGGCTGGAGCTGCCACCAGAAAGCTTGGCAGCTCCTCAACTTCCGGCATT
AGATGACGGAAACCGGCTCGAGGGGGTCTCGAAACCGTCGAGGAGTTGAAGGGCGTAA

ThrGlyAspAsnThrThrSerSerGluProAlaProSerGlyCysProProAspSer
7081 ACGGGCGACAATACGACAACATCCTCTGAGCCCCCTTCTGGCTGCCCGACTCC
TGGCGCTGTATGCTGTGAGACTCGGGGGGGAAAGACCCACGGGGGGCTGAGG

AspAlaGluSerTyrSerMetProProLeuGluGlyGluProGlyAspProAspLeu
7141 GACGCTGAGTCTATTCCATGCCCTGGAGGGGGAGCCCTGGGATCCGGATCTT
CTGCGACTCAGGATAAGGGGTACGGGGGACTCCCCCTCGACCCCTAGGCCCTAGAA

SerAspGlySerTrpSerThrValSerSerGluAlaAsnAlaGluAspValValCysCys
7201 AGCGACGGGTCAACGGTCAGTAGTGGCCAAACGGGGAGGATGTCGTGCTGC
TCGCTGCCAGTACCGTACGTTGCCAGTACACTCCGGTGGCTCCCTACAGCACACGACG

SerMetSerTyrSerTrpThrGlyAlaLeuValThrProCysAlaAlaGluGluGlnLys
7261 TCAATGCTTACTCTTGGACAGGGCACTCGTCACCCCGTGGCTGGGGAAAGAACAGAAA
AGTTACAGAATGAGAACCTGTCCGGGTGAGCAGTGGGGCACGGGGCCCTCTTCTT

LeuProIleAsnAlaLeuSerAsnSerLeuLeuArgHisAsnLeuValTyrSerThr
7321 CTGCCCATCAATGCACTAAGCAACTCGTTGCTACGTCAACCAATTGGTGTATTCCACC
GACGGGGTAGTACGTGATTCGTTGAGCAACGATGCAGTGGTGTAAACACATAGGTGG



FIG. 72U

7381	ThrSerArgSerAlaCysGlnArgGlnLysValThrPheAspArgLeuGlnValLeu ACCTCACCGCAGTGCTTGGCCAAAGGCAAGAAAGTACATTTGACAGACTGCAAGTTCTG TGGAGTGGTACGAACGGTTCCGTCTTCAAGTAACTGTCTGACGTTCAAGAC
7441	AspSerHistYrGlnAspValLeuLysGluValLysAlaAlaSerLysValLysAla GACAGCCATTACCGAACGCTACTCAAGGAGGTTAAAGCAGGGCGTCAAAAGTGAAGGCT CTGTCGGAATGGTCCATGAGTTCTCCAAATTCTGTCGCCAGTTCACTCCGA
7501	AsnLeuLeuSerValGluGluAlaCysSerLeuThrProProHisSerAlaLysSerLys AACTTGCTATCCGTAGAGGAAGCTTGAGCAGCCCCACACTCAGCCAAATCCAAG TTGAACCGATAAGGCATCTCCCTTCGAACGTGGACTGCGGGTGTAGTCGGTTAGGTC
7561	PheGlyTyryAlaLysAspValArgCysHisAlaArgLysAlaValThrHisIleAsn TTTGGTTATGGGCCAAAGACGGTCCGGTGCCTGCAGAAAGGCCGTAACCCACATCAAC AAACCAAATCCCCGGTTCTGCAGGCCAACGGTACGGTCTTCCGGCATGGGTAGTTG
7621	SerValIlePheAspLeuGluAspAsnValThrProIleAspThrThrIleMetAla TCCGTGTGGAAAGACCTTCTGGAAAGACAATGTAACACCAATAGACACTACCATCATGGCT AGGCACACCTTCTGGAAAGACCTTCTGTTACATGTGGTTATCTGTGATGGTAGTACCGA
7681	LysAsnGluValPheCysValGlnProGluLysGlyGlyArgLysProAlaArgLeuIle AAGAACCGAGGTTTCTGGCTTCAAGCTGAGAAGGGGGTCTGTAAGCCAGCTCGTCTCATC TTCTTGCTCCAAAGACGCCAAGTCGGACTCTCCCCCAGCATTCGGTCCAGCAGAGTAG
7741	ValPheProAspLeuGlyValArgValCysGluLysMetAlaLeuTyroAspValValThr GTGTTCCCCGATCTGGCGTGGCGTGTGGCAAAAGATGGCTTGTACGACGTGGTTACA CACAAAGGGCTAGACCCGCACCGGCACACGCTTCTACCGAAACATGCTGCACCAATGT



FIG. 72V

LysLeuProLeuAlaValMetGlySerSerTyrGlyPheGlnTyrSerProGlyGlnArg
AAGCTCCCTTGCCGTGATGGAAAGCTACGGATTCCAATACTCACCAGGACAGCGG
TTCGAGGGAACCGGCACTACCTTCGAGGATGCCATAAGGTTATGAGTGGCTGTGCC

7801 ValGluPheLeuValGlnAlaIlePheSerLysThrProMetGlyPheSerTyrAsp
GTTGAATTCCCTCGTGCAGCGTGAAGTCCAAGAAAACCCCAATGGGTCTCTCGTATGAT
CAACTAAAGGAGCACGTTGCACCTTCAGGTTACCCCAAGAGGCAATACTA

7861 ThrArgCysPheAspSerThrValGluSerAspIleArgThrGluGluAlaIleTyr
ACCCGGCTGCTTGACTCCACAGTCACTGAGAGGCCACATCCGTACGGAGGGCAATCTAC
TGGCGACGAAACTGAGGTGTCACTGACTCTCGCTGTAGGCATGCCATGCCCTCCGTTAGATG

7921 GlnCysCysAspLeuAspProGlnAlaArgValAlaIleLysSerLeuThrGluArgLeu
CAATGTTGTGACCTCGAACCCCAAGCCCCGTGCCATCAAGTCCCTCACCGAGGGCTT
GTTACAAACACTGGAGCTGGGGTTCGGGGACCGGTAGTTCAGGGAGTGGCTCTCCGAA

7981 TyrValGlyGlyProLeuThrAsnSerArgGlyGluAsnCysGlyTyrArgArgCysArg
TATGTTGGGGCCCTCTACCAATTCAAGGGGGAGAACCTGGGCTATGGCAGGTGCCGC
ATACAAACCCCCGGAGAATGGTTAAGTCCCCCTCTTGACGCCATAGGGTCCACGGCG

8041 AlaSerGlyValLeuThrThrSerCysGlyAsnThrLeuThrCysTyrIleLysAlaArg
GGGAGGGGGTACTGACAACACTAGCTGTGGTAACACCCCTCACTTGCTACATCAAGGCCGG
CGCTCGCCGCACTGACTGTTGATCGACACCATTTGGGAGTGAACGATGTAGTTCCGGGCC

8101



FIG. 72W

8161 AlaAlaCysArgAlaAlaGlyLeuGlnAspCysThrMetLeuValCysGlyAspAspLeu
GCAGCCTGTCGAGGCCGAGGGCTCCAGGACTGCACCATGCTGTTGGGACGACTTA
CGTCGGACAGCTGGCTGGTCTGACGTGGTACGAGCACACCCGCTGCTGAAT

8221 ValValIleCysGluSerAlaGlyValGlnGluAspAlaAlaSerLeuArgAlaPheThr
GTCGTTATCTGTGAAAGCGGGGTCCAGGAGGACGGACGCCGAGGCTTCACG
CAGCAATAGACACTTTCGCGCCCCAGGTCCCTGGACTCTGGAAAGTGC

8281 GluAlaMetThrArgTyrSerAlaProProGlyAspProProGlnProGluThrAspLeu
GAGGCTATGACCAGGTACTCCGGCCCCCTGGGGACCCCCACAAACCAACAGAAATACGACTTG
CTCCGATACTGGTCCATGAGGGGGGGGACCCCTGGGGGTGGTCTATGGTCTATGGTCAAC

8341 GluLeuIleThrSerCysSerAsnValSerValAlaHisAspGlyAlaGlyLysArg
GAGCTCATAACATCATGCTCCTCCAACAGTGTCAAGTCGGCCACGGGCTGGAAAGAGG
CTCGAGTATTGTTAGTACGAGGGAGGTTCACAGTCAGCTGGGACCTTCTCCT

8401 ValTyrrLeuThrArgAspProThrThrProLeuAlaArgAlaAlaTrpGluThrAla
GTCTACTACCTCACCCGTGACCCCTACAACCCCCCTCGCGAGAGCTGCGTGGGAGACAGCA
CAGATGATGGAGTGGCACTGGGATGTTGGGGAGGCTCTGACGCACCCCTCTGTCGT

8461 ArgHisThrProValAsnSerTrpLeuGlyAsnIleIleMetPheAlaProThrLeuTrp
AGACACACTCAGTCAGTCATTCCCTGGCTAGGCAACATAATCATGTTGCCACACTGTGG
TCTGTGTGAGGTCAAGGACCGATAAGGACGTTAACGTTAGTACAAACGGGGTGTGACACC



FIG. 72X

8521	AlaArgMetIleLeuMetThrHisPhePheSerValLeuIleAlaArgAspGlnLeuGlu GGGAGGATGATACTGATGACCCATTCTTTAGCGCTCCTTATAGCCAGGGACCCAGGCTTGAA CGCTCTACTATGACTACTGGTAAAGAAATCGCAGGAATATCGGTCCCTGGTCGAACTT
8581	GlnAlaLeuAspCysGluIleTyrGlyAlaCysTyrSerIleGluProLeuAspLeuPro CAGGCCCTCGATTGCGAGATCTACGGGGCCTGCTACTCCATAGAACCTTGATCTACCT GTCCGGGAGCTAACGCTCTAGATGCCCGGACGGATGAGGTATCTTGGTGAACTAGATGGAA
8641	ProIleIleGlnArgLeuHisGlyLeuSerAlaPheSerLeuHisSerTyrSerProGly CCAATCATCAAAAGACTCCATGGCTCAAGCGCATTTCACTCCACAGTTACTCTCAGGT GGTTAGTAAGTTCTGAGGTACCGGAGTCGGGTAAAGTGAGGTGCAATGAGGGTCCA
8701	GlutIleAsnArgValAlaAlaCysLeuArgLysLeuGlyValProProLeuArgAlaAlaTrp GAAATTAAATAGGGTGGCCGCATGCCCTCAGAAAAACTTGGGTACCGCCAGAGGGCTTGG CTTAATTATCCCACCGGGCGTACGGAGTTGAACCCCATGGGGAAACGGCTCGAACCC
8761	ArgHisArgSerValArgAlaArgLeuLeuAlaArgGlyGlyArgAlaAlaAlaIle AGACACCCGGCCGGAGGGTCCGGCTAGGCTTCTGGCCAGAGGGCAGGGCTGCCATA TCTGTGGCCGGCCCTCGCAGGGGATCCGAAGACGGTCTCCGTCCGACGGTAT
8821	CysGlyLysTyrLeuPheAsnTrpAlaValArgThrLysLeuThrProIleAla TGTGGCAAGTACCTCTCAACTGGCAGTAAGAACAAAGCTCAAAACTCACTCCAAATAGCG ACACCGTTCATGGAGAAGTTGACCCGTATTCTTGTGTTGAGTTGAGTGAAGGTATCGC



FIG. 72Y

8881 AlaAlaGlyGlnLeuAspLeuSerGlyTrpPheThrAlaGlyTyrSerGlyGlyAspIle
GCCGCTGGCCAGGCTGGACTTGTCCGGCTGGTTACGGCTGGCTACAGGGGGAGACATT
CGGGGACCGGGTGCACCTGAACAGGGCGACCAAGTGGCGGACCGATGTGGCCCCCTCTGTAA

8941 TyrHisSerValSerHisAlaArgProArgTrpIleTrpPheCys
TATCACAGCGTGTCTCATGCCGGCCGGCTGGATCTGGTTTGCCC
ATAGTGTGGCACAGAGTACGGGGGGGAGCTAGACCAAAACGGG



1 GluPheGlySerValIleProThrSerGlyAspValValValValAlaThrAspAlaLeu
GAATTCCGGTCCGTCATCCCGACCAGCGGCGATGTTGTCGTCGTCGCAACCGATGCCCTC
CTTAAGCCCAGGCAGTAGGGCTGGTCGCGCTACAAACAGCAGCACCGTGGCTACGGGAG
1 ECOR1, 7 NLAlV, 8 AVA2 SAU96, 15 FOK1, 24 NSPB11, 26 FNU4H
1, 52 SFAN1, 57 MN11, 60 NLAl11,
MetThrGlyTyrThrGlyAspPheAspSerValIleAspCysAsnThrCysValThrGln
61 ATGACCGGCTATACCGGCGACTTCGACTCGGTGATAGACTGCAATACGTGTGTCACCCAG
TACTGCCGATATGGCCGCTGAAGCTGAGCCACTATCTGACGTTATGCACACAGTGGGTC
65 HPA11, 74 HPA11, 83 TAQ1, 85 HIN1, 90 HPH, 106 AFL111 MA
E2, 112 MAE3, 113 HPH,
ThrValAspPheSerLeuAspProThrPheThrIleGluThrIleThrLeuProGlnAsp
121 ACAGTCGATTCAGCCTGACCCTACCTCACCATGAGACAATCACGCTCCCCCAAGAT
TGTCGCTAAAGTCGGAACTGGGATGGAAAGTGGTAACTCTGTTAGTCGCAGGGGGTTCTA
125 TAQ1, 149 HPH, 178 SFAN1,
AlaValSerArgThrGlnArgArgGlyArgThrGlyArgGlyLysProGlyIleTyrArg
181 GCTGTCCTCCCGCACTCAACGTCGGGGCAGGACTGGCAGGGGGAAAGCCAGGCATCTACAGA
CGACAGAGGGCGTGAGTTGCAGCCCCGTCCCTGACCGTCCCCCTTCGGTCCGTAGATGTCT
198 MAE2, 226 ECOR11 SCRF1, 230 SFAN1,
PheValAlaProGlyGluArgProProAlaCysSerThrArgProSerSerValSerAla
241 TTTGTGGCACCGGGGGAGCGCCCTCCGGCATGTTGACTCGTCCGTCCTGTGAGTGCC
AAACACCGTGGCCCCCTCGCGGGAGGCGTACAAGCTGAGCAGGCAGGAGACACTCACGG
246 BAN1 NLAlV, 250 HPA11 NC11 SCRF1, 257 HAE11, 258 HH11, 2
62 MN11, 265 HPA11, 268 NSPC1, 269 NLAl11, 274 TAQ1, 276 HIN
F1, 287 MN11, 296 BSP1286,
301 ArgIle
CGAATTC
GCTTAAG
302 ECOR1,
361

FIG. 74



FIG. 75

-----Overlap with 6k-----

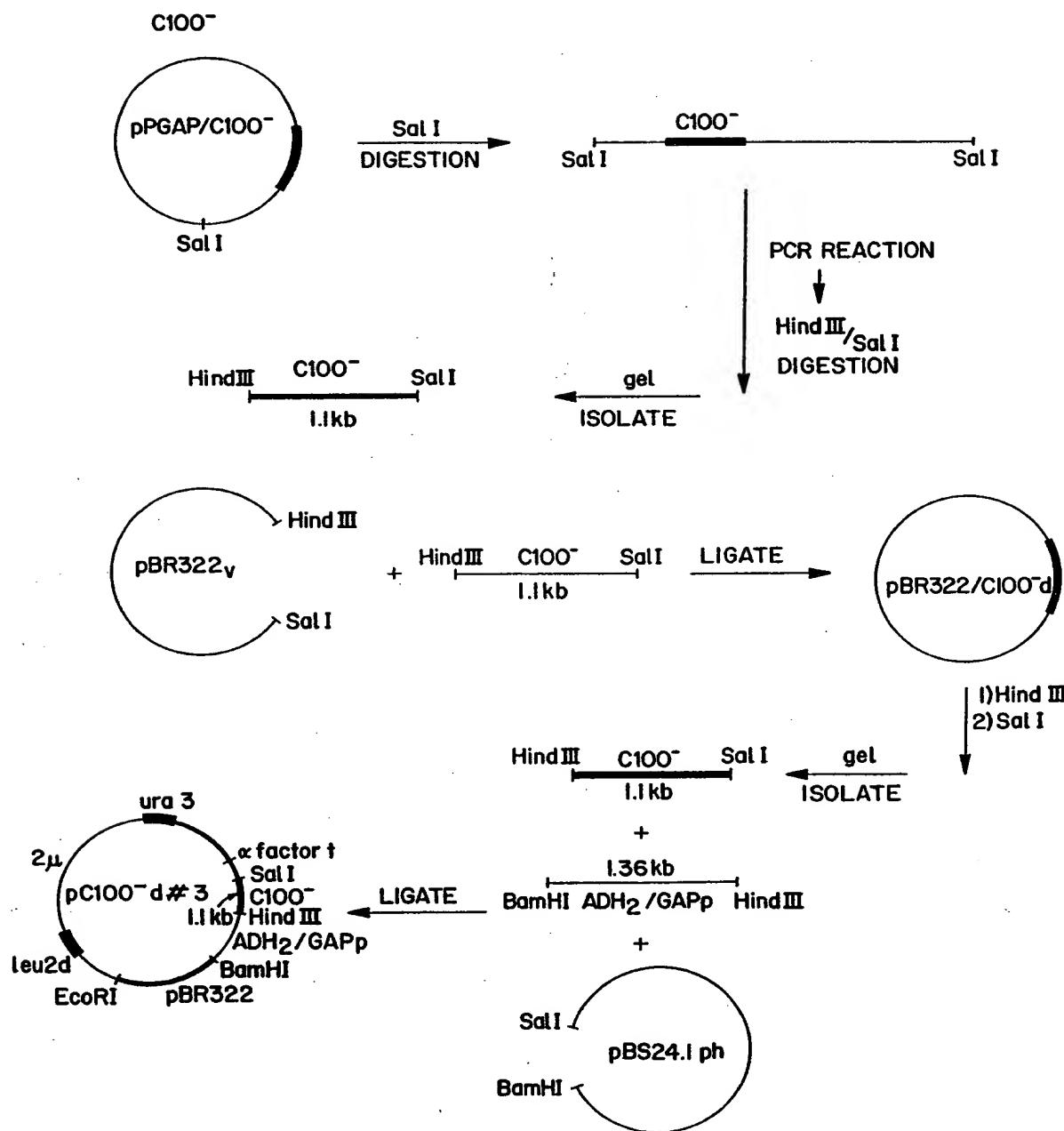
TyrHisSerValSerHisAlaArgProArgTrpIleTrpPheCysLeuLeuLeuLeuAla
1 TTAGTCACAGGGTGTCTCATGCCCGCCCGCTGGATCTGGTTTGGCTTACTCCTGGCTTGC
AATAGTGTGCCACAGAGTACGGGGGGGGGACCTAGACCAAAACGGATGAGGACGAAACG

AlaGlyValGlyIleTyrIleLeuProAsnArgOP
61 TGCAGGGGTAGGCATCTACCTCCTCCCCAACCGATGAAGGTTGGCTAAACACTCCGGCC
ACGTCATCCGTAGATGGAGGGGGCTACTTCCAACCCCATTGTGAGGCCGG

121 T
A



FIG. 76



1. human 27 2. HCV 1 3. human 23

FIG. 82A

1 CGGCTTCGGGACCTCATGGGTACATCCGCTCTGGGGCtCCCTCTGGGGGCTGCCAGGGCCCTGGC

1 CGGCTTCGGGACCTCATGGGTACATCCGCTCTGGGGCtCCCTCTGGGGGCTGCCAGGGCCCTGGC

1 CGGCTTCGGGACCTCATGGGTACATCCGCTCTGGGGCtCCCTCTGGGGGCTGCCAGGGCCCTGGC

73 GCATGGGTCGGTCTGGAAAGACGGGGTGAACATGCAACAGGGAACCTTCTGGTGTCTTCTAT

73 GCATGGGTCGGTCTGGAAAGACGGGGTGAACATGCAACAGGGAACCTTCTGGTGTCTTCTAT

73 GCACGGGTCGGGTTtGGAAAGACGGGGTGAACATGCAACAGGGAACCTTCTGGTGTCTTCTAT

145 CTTCTCTGGtCTGCTCTTGCTGACCGTGCCCCatCGGCCAACCTACCGAACATGCCAACCTCCtCGGGcat

145 CTTCTCTGGCCTGCTCTTGCTGACTGTGCCCCGCTCGGCCAACCTCCACGGGCT

145 CTTCTCTGGCCTACTCTTGCTGACCGTGCCCCGCTCagGCCAACCTACCGAACATGCCAACCTCCtCGGGCT

217 TTACCATGTCAACAAATGATGCCCTAATCGAGTATGTGTTACCGAGGACGGGGCacacCCATCCTacACTCTCC

217 TTACCACTGTCACCAATGATGCCCTAACTCGAGTATGTGTTACCGAGGACGGGGCacacCCATCCTacACTCC

217 TTACCATGTCAACAAATGATGCCCTAACTCGAGTATGTGTTACCGAGGACGGGGCacacCCATCCTacACTCC

289 GGGGTGtGTCCTTGCGTTCGGAGGGtAACGCCCGAaATGTGGGtGCCGtAGCCCCACAGTGGCCAC

289 GGGGTGCGTCCTTGCGTTCGtGAGGGCAACGCCCTCGAGGtGTGGGtGCCGatGACCCtACGGTGGCCAC

289 GGGGTGtGTCCTTGCGTTCGAGGAtAACGtCTCGAGAtGTGGGtGCCGtGACCCtACGGTGGCCAC



FIG. 82B

361 CAGGGATGGCAAACCTCCCCGGGAGCGCAGCTTCGACGTCACATCGATCTGCTTGTGGGAGtGCCACCCtTG
361 CAGGGATGGCAAACCTCCCCGGGAGCGCAGCTTCGACGTCACATCGATCTGCTTGTGGGAGGCCACCCtTG
361 CAGGGACGGCAAACCTCCCCCacaACGCAAGCTTCGACGTCACATCGATCTGCTTGTGGGAGGCCACCCtTG
433 CTCGGCCCTCTATGTGGGGACTGTGCGGGTCTGCTTCTGTGGGtCAACTGTTACCTTCTCTCCAG
433 tTCGGCCCTCTACGGTGGGGACCTtGCGGGTcaTCTTCTGTGGGtCAACTGTTACCTTCTCTCCAG
505 GCGCCACTGGACAAGGCAAGATGCAACTGCTCTATCTACCCGGCAATAACGGGacACCGCATGGCATG
505 GCGCCACTGGACGGACGGCAAGGTGCAATGCTCTATCTACCCGGCAATAACGGGTACCGCATGGCATG
505 GCGCCACTGGACGGACGGCAGtGCAACTGTTCTATCTACCCGGCAATAACGGGTACCGCATGGCATG
577 GGATATGATGATGAACtGGTCCCCTaCagCacGGCtGGTAATGGCTCAGCTCAGGATCCGCAAGCCAT
577 GGATATGATGATGAACtGGTCCCCTaCgCacGGCGTGGTAATGGCTCAGCTCAGGATCCCACAGCCAT
649 CTGGACATGATGGGGtGCTCACTGGGAGtGCTAGGGTAgTAGCTCAGCTCAGGATCCCAGGGCAT
649 CTGGACATGATGGGGtGCTCACTGGGAGtGCTAGGGGATAGGGTATTCCTCCATGGTGGGAACtG
649 CTGGACATGATGGGGtGCTCACTGGGAGtGCTAGGGGATAGGGTATTCCTCCATGGTGGGAACtG
721 GGCAGGGTCTGGTAGtGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTG
721 GGCAGGGTCTGGTAGtGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTG
721 GGCAGGGTCTGGTAGtGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTG
721 GGCAGGGTCTGGTAGtGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTG





FIG. 82C

FIG. 83

1 GFADLMGYIPLVGAPLGGAARALAHCVRVLEDGVNYATGNLPGCSFSIFLLALISCLTVPASAYQVRNSSLG
 1 GFADLMGYIPLVGAPLGGRARALAHCVRVLEDGVNYATGNLPGCSFSIFLLALISCLTVPASAYQVRNSTGL
 73 YHVTNDCPNNSIVTETADTILHSPGCVPCVREGNASKCWWPvaptvATRDGnIPATOLRRHIDLVLGSATLC
 73 YHVTNDCPNNSIVTETADTILHSPGCVPCVREGNASKCWWPvaptvATRDGnIPATOLRRHIDLVLGSATLC
 145 SALYVGDLCGSVELVGOLFTESPRRHWTQDCNCSTYPGHITGHRMADMMMNWSPTaALVMAQIIRIPOAI
 145 SALYVGDLCGSVELVGOLFTESPRRHWTQDCNCSTYPGHITGHRMADMMMNWSPTaALVMAQIIRIPOAI
 145 SALYVGDLCGSIFLVGOLFTESPRRHWTQDCNCSTYPGHITGHRMADMMMNWSPTaALVMAQIIRIPOAI
 217 LDMDIAGAHNGVLAGGIAYFSMVGWNWAKVLWILLFAGVDATTyTGGnaarttqaltsffSPGAQDqIQLINT
 217 LDMDIAGAHNGVLAGGIAYFSMVGWNWAKVLWILLFAGVDATTyTGGnaarttqaltsffSPGAQDqIQLINT
 217 LDMDIAGAHNGVLAGGAYFSMVGWNWAKVLWILLFAGVDATyTGGSAarstaGvaSLfTPGATIONIQLINT
 289 NGSWHINRTALNCNasLdrgwAGLFFYHKNSSGCPERASCRPLadFDQ
 289 NGSWHINSTALNCNDSLntgWLAGLFFYHKNSSGCPERASCRPLDFDQ
 289 NGSWHINSTALNCNDSLntgWLAGLFFYHKNSSGCPERASCRPLDFDQ

1. human 27
 2. HCV 1
 3. human 23



FIG. 84

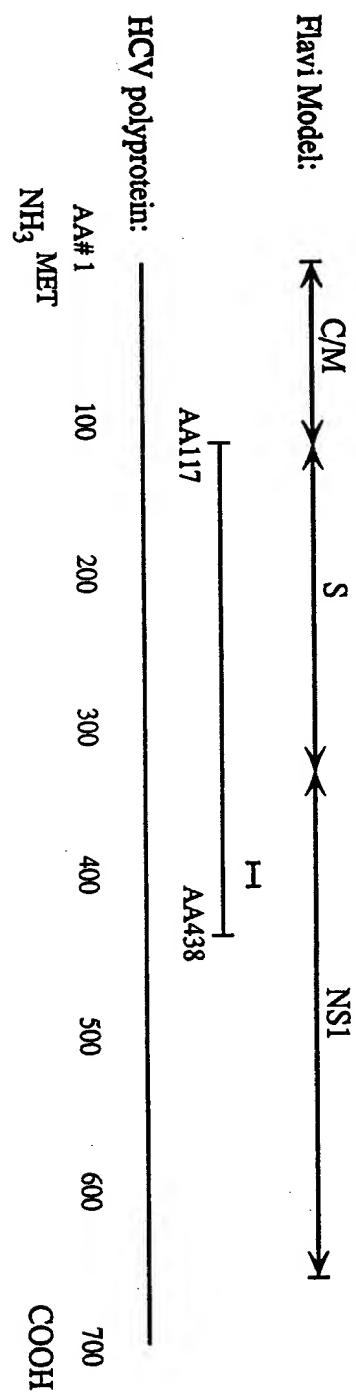


FIG. 85A

1. ssThorn#8.r (1-587)
2. SSEC1#2.r (1-587)
3. SSHCT18#7.r (1-587)
4. env1.hcv (1-1657)

1

1

289 ggggtggggatggctctgtatcccgtagctggccacagccccggcgtacGg

3 ATTTCGCAATTGGGTAAAGGTCAATCGATACCCATTACGTGCCCTTCCCCACCTCATGGGTACATCCCTC
3 ATTTCGCAATTGGGTAAAGGTCAATCGATACCCATTACGTGCCCTTCCCCACCTCATGGGTACATCCCTC
3 ATTTCGCAATTGGGTAAAGGTCAATCGATACCCATTACGTGCCCTTCCCCACCTCATGGGTATATACCGCTC
361 tcggcgaATTGGGTAAAGGTCAATCGATACCCATTACGTGCCCTTCCCCACCTCATGGGTACATACCGCTC

75 GTCGGCCGCCCTCTGGGGCCGCTGCCAGGGCCCTGGGCCATGGCGTCCGGTTCTGGAAGACGGGCTGAAC
75 GTCGGCCGCCCTCTGGAGGCCGCTGCCAGGGCCCTGGGCCATGGCGTCCGGTTCTGGAAGACGGGCTGAAC
75 GTCGGCCGCCCTCTGGAGGCCGCTGCCAGGGCCCTGGGCCATGGCGTCCGGTTCTGGAAGACGGGCTGAAC
433 GTCGGCCGCCCTCTGGAGGCCGCTGCCAGGGCCCTGGGCCATGGCGTCCGGTTCTGGAAGACGGGCTGAAC



FIG. 85B

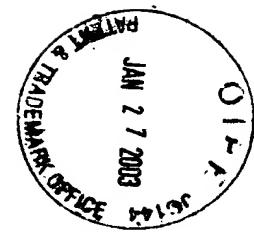
147 TATGCAACAGGGAACCTCCTGGTTGCTCTTCTCTTCTGGCCCTGCTCTTGTcTGACCGTG
147 TATGCAACAGGGAACCTTCGGTTGCTCTTCTTATCTTCCTTGCCCTGCCTTGCTCTTGCTTGACTGTG
147 TATGC CAGGGAACCTTCGGTTGCTCTTCTCTATCTTCCTTGCCCTGCTCTTGCTTGACTGTG
505 TATGCAACAGGGAACCTTCCTGGTTGCTCTTCTCTATCTTCCTTGCCCTGCTCTTGACTGTG
219 CCCGCTTCAAGCCTACCAAGTGCACACTCCACGGGCTTACCATGTCACCAATGATGCCCTAACTCGAGC
219 CCCGCTTCAAGCCCACCAAGTGCACACTCCACGGGCTTACCATGTCACCAATGATGCCCTAACTCGAGC
577 CCCGCTTCGCGCtACCAAGTGCACACTCCACGGGCTTACCATGTCACCAATGATGCCCTAACTCGAGT
291 ATTTGTGTACGAGGGGCCGATGCTATCCTGCAACGCTCCGGGGTGTGTCCCTGCGTCgCGAGGGtAACGCC
291 ATTTGTGTACGAGGGGCCGATGCCATCCTGCAACACTCCGGGGTGTGTCCCTGCGTTCACGAGGGCAACGTC
291 ATTTGTtATCGAaAGCGGCCGACGCCATCCTGCAACACTCCGGGGTGTGTCCCTGCGTTCACGAGGGCAACGTC
649 ATTTGTgtACGAGGGGCCGatGCCATCCTGCAACACTCCGGGGTGTGTCCCTGCGTTCACGAGGGCAACGTC
363 TCGAGGTGTTGGGTGGGATGACCCCAACGGTGGCCGAGGGAGACTCCCCACAAAGCAGCTgCGA
363 TCGAGGTGTTGGGTGGGATGACCCCAACGGTGGCCACAGGGGAGGGCAACTCCCCACAAACGGCAGCTTCGA
721 TCGAGGTGTTGGGTGGGAtGACCCCAACGGTGGCCACAGGGAGGGCAACTCCCCAGGGCAGCTTCGA





937	ATCTatccc	ATCGAATT	579	ATCGAATT	579
-----	-----------	----------	-----	----------	-----

FIG. 85C



10 20 30 40
GAATTGGACGACGCAAGGTTGCAATTGCTCTATCTATCCGGCCATAT
X:-----
/SSp CTCTCCCAGGCGCCACTGGACGACGCAAGGTTGCAATTGCTCTATCTATCCGGCCATAT
550 560 570 580 590 600
50 60 70 80 A 90 100
AACAGGTACCGCATGGCATGGATATGATGATGAACTGGTCCCCTACGACGGCGTTAGT
:::-----
AACGGGTACCGCATGGCATGGATATGATGATGAACTGGTCCCCTACGACGGCGTTGGT
610 620 630 640 650 660
110 120 130 140 150 160
GGTAGCTCAGCTGCTCCGGATCCCACAAGCCATCTGGACATGATCGCTGGTGCTCACTG
:::-----
AATGGCTCAGCTGCTCCGGATCCCACAAGCCATCTGGACATGATCGCTGGTGCTCACTG
670 680 690 700 710 720
170 180 190 200 210 220
GGGAGTCCTGGCGGGCATAGCGTATTCTCATGGTGGGAACGGCGAAGGTCTTGGC
:::-----
GGGAGTCCTGGCGGGCATAGCGTATTCTCATGGTGGGAACGGCGAAGGTCTTGGT
730 740 750 760 770 780
230 240 250 260 270 280
AGTGCTGCTGCTATTGCCGGCGTCGACCGGAAACCCACGTCACTGGGGGATGCCGC
:::-----
AGTGCTGCTGCTATTGCCGGCGTCGACCGGAAACCCACGTCACCGGGGAAAGTGCCGG
790 800 810 820 830 840
290 300 310 320 330 340
CAAAACTACGGCTAGCCTTACTGGTCTCTCAATTAGTGCCAAGCAGAACATCCAGCT
:::-----
CCACACTGTGTCTGGATTGTAGCCTCCTCGCACCAAGGGCGCAAGCAGAACGTCCAGCT
850 860 870 880 890 900
350 360 370 380 390 400
GATCAACACCAACGGCAGTTGGCACATCAACAGGACGGCCTGAACGTCAATGATAGCCT
:::-----
GATCAACACCAACGGCAGTTGGCACCTCAATAGCACGGCCTGAACGTCAATGATAGCCT
910 920 930 940 950 960
410 420
CAACACCGGCTGGAATT
:::-----X
CAACACCGGCTGGTGGCAGGGCTTCTATCACCAAGTTCAACTCTTCAGGCTGTCC
970 980 990 1000 1010 1020

FIG. 86



AA #117-308 (putative envelope region)

FIG. 87

1) HCT #18 (USA)	3 clones sequenced
2) JH23 (USA)	?
3) JH 27 (USA)	?
4) PBL-Th (USA)	2 clones sequenced
5) EC1 (Italy)	3 clones sequenced
6) HCV-1 (chimpanzee)	multiple

C/M←→S

1)	(P)
2)	
3)	
4)	
5)	

6) RNLGKVIDTLCGFADLMGYIPLVGAPLGGALARALAHGVRVLEDGVNYATGNL

1)	H		
2)			
3)	S	T	T
4)	L		
5)	(F)	S	

6) PGCSFSIFLLALLSCLTVPSAYQVRNSTGLYHVTNDPNSSIVYEAADAILH

1)	Y					
2) A	(H)	V	V	T		
3) S	D	V	V	K	T	
4) A			PVA	N		
5)	H	V		A	R	T

6) TPGCVPCVREGNASRCWVAMPTVATRDGKLPATQLRRHIDLLVGSATLCS

1)		
2)	I	D
3)		D
4)		
5)	I	

6) ALYVGDLCGSVFLVGQLFTSPRRHWTTQGCNCSI

SUMMARY: "S" AA117-308 (93%)

HCT#18, PBL-Th, EC1(Italy) have 97% homology with HCV-1
 JH23 and JH 27 have 96% and 95% homology with HCV-1, respectively



AA#300-438 (C-terminal region of the putative envelope region and amino ~1/3 of NS1)

- 1) JH23 ?
- 2) JH27 ?
- 3) Japanese isolate (T. Miyamura) ?
- 4) EC10 (Italy) 2 clones sequenced
(one nt difference, which did not result in an amino acid change)
- 5) HCV-1 (chimpanzee) multiple

S ← → NS1

- 1) D A V
- 2) D A
- 3)
- 4)

VS VM V

5) TTQGCNCISIYPG HITGHRM AWDM MNWSPTT ALVMAQLL RIPQ AILD MIA GA

- 1) M R A R S T A V A
- 2)
- 3) L Y I M G H R V Q V T T L T
- 4) A I A K T A S L T A

5) HWGVLAGIAYFSM VGNWAKV L V V L L F A G V D A E T H V T G G S A G H T V S G F V S L

- 1) FS R I I T V
- 2) FT D I I R A D
- 3) FR S K I V I R Q F
- 4) FNL I I R N

5) LAPGAKQNVQLINTNGS WHLN STALNCNDSLNTGWL

SUMMARY: NS 1 AA 330-660

"Isolate"	%Homology (AA330-438)	%Homology (AA383-405)
JH23	83	57
JH27	80	39
Japanese	73	48
EC10 (Italy)	84	48

FIG. 88



FIG. 89A

5' terminus-----

CACTCCACCATGAATCACTCCCCGTGAGGAACTACTGTCTCACGCAGAAAGCGTCTAG
 CCATGGCGTTAGTATGAGTGTGCGAGCCTCAGGGACCCCCCTCCGGGAGAGCCATA
 GTGGTCTGCGGAACCGGTGAGTACACCGGAATTGCCAGGACGCCGGTCTTCTTGGGA
 TCAACCCGCTCAATGCCTGGAGATTGGCGTGCCTCCGCAAGACTGCTAGCCGAGTAGT
 GTTGGGTGCGAAAGGCTTGTGGTACTGCCTGATAGGGTGCCTGCGAGTGCCCCGGAG-300

(Putative initiator methionine codon)

G C
 GTCTCGTAGACCGTGCACCATGAGCACGAATCTAAACCTCAAAAAAAAAACAAACGTAAC
 CACCAACCGTCGCCAACAGGACGTCAAGTTCCGGGTGGCGTCAAGATCGTTGGTGGAGT
 TTACTTGTGCCGCGCAGGGGCCCTAGATTGGGTGTGCGCGACGAGAAAAGACTTCCGA
 GCGGTGCGAACCTCGAGGTAGACGTCAGCCTATCCCCAAGGCTCGTCGCCCGAGGGCAG
 GACCTGGGCTCAGCCGGGTACCCCTGGCCCTATGGCAATGAGGGCTGCAGGGTGGGC-600
 GGGATGGCTCCTGTCTCCCGTGGCTCTGGCCTAGCTGGGCCCCACAGACCCCCGGCG
 TAGGTCGCGCAATTGGTAAGGTATCGATACCCCTACGTGCGGCTTCGCCGACTCTCAT
 GGGTACATACCGCTCGTCGGGCCCTTGGAGGCCTGCCAGGGCCTGGCGATGG
 CGTCCGGGTTCTGGAAGACGGCGTGAACATGCAACAGGAACCTCTGGTTGCTCTT

C
 CTCTATCTCCTTCTGGCCCTGCTCTTGCTTGAATGTGCCCCGCTTCGGCTACCAAGT-900
 GCGCAACTCCACGGGGCTTACACGTCAACCAATGATTGCCCTAACTCGAGTATTGTGTA
 CGAGGCGGGCGATGCATCCTGCACACTCCGGGTGCGTCCCTTGCGTICGTGAGGGCAA
 CGCCTCGAGGTGTTGGTGGCGATGACCCCTACGGTGGCCACCAAGGGATGGCAAACCTCC
 CGCGACGCGAGCTTCGACGTACATCGATCTGCTTGTGCGGAGCGCCACCCCTGTTGCGC
 CCTCTACGTGGGGGACCTATGCGGCTCTGCTTTCTGCGGCCACTGTTCACCTCTC-1200
 TCCCAGGCGCCACTGGACGACGCAAGGTTGCAATTGCTATCTATCCGGCCATATAAC

G
 GGGTACCGCATGGCATGGATATGATGATGAACGGTCCCCACGACGGCGTTGTAAT
 GGCTCAGCTGCTCCGGATCCCACAAGCCATCTGGACATGATCGCTGGTGTCACTGGGG
 AGTCCTGGCGGGCATAGCTATTCTCATGGGGAACTGGGCGAAGGTCTGGTAGT
 GCTGCTGCTATTGCGCGTGCACGCGGAAACCCACGTACCCGGGGAAAGTGGCCCA-1500
 CACTGTGCTGGATTGTTAGCTCTCGCACAGCGCCAAGCAGAACGTCAGCTGAT
 CAACACCAACGGCAGTTGGCACCTCAATAGCACGGCCCTGAACCTGCAATGATAGCCTAA
 CACCGGCTGGTGGCAGGGCTTTCTATCACCACAAGTTCAACTCTCAGGCTGTCCTGA
 GAGGCTAGCCAGCTGCCGACCCCTACCGATTTGACCAGGGCTGGGCCCCATCAGTTA
 TGCCAAACGGAAAGCGGGCCCGACAGCGCCCTACTGCTGGACTACCCCCAAAACCTG-1800
 CGGTATTGTGCCCCGCGAAGAGTGTGTTGGCTGGTATATTGTTCACTCCAGCCCCGT
 GGTTGGGAAACGACCGACAGGTGCGGCCACCTACAGCTGGGTGAAAATGATAAC
 GGACGTCTCGTCTTAACAAATACCAGGCCACCGCTGGCAATTGGTTGGTGTACCTG
 GATGAACTCAACTGGATTACCAAAAGTGTGCGGAGGCCCTCTTGTTGTCATGGAGGGC
 GGGCAACAAACACCCCTGCACTGCCCACTGATTGCTTCCGCAAGCATCCGGACGCCACATA-2100

C
 CTCTCGGTGCGGCTCCGGTCCCTGGATCACACCCAGGTGCCTGGTCACACCGTATAG
 GCTTGGCATTATCCTGTACCATCAACTACACCATATTTAAATCAGGATGTACGTGGG
 AGGGGTGGAACACAGGCTGGAAAGCTGCCTGCAACTGGACGCAGGGCGAACGTTGCGATCT
 GGAAGACAGGGACAGGTGCGAGCTCAGCCGTTACTGCTGACCAACTACACAGTGGCAGGT
 CCTCCCGTCTTCAACCTACAGCCTTGTCCACCGGCTCATCACCTCCACCA-2400
 GAACATTGGGACGTGCACTTGTACGGGTGGGTCAGACGCTCGCTGGCCAT
 TAAGTGGGAGTACGTCGTTCTCTGCTGCTGCAAGACATCGCGCTGTGCTCCTGGCCAT
 CTTGTGGATGATGCTACTCATATCCCAAGCGGAGGGCGTTGGAGAACCTCGTAATACT
 TAATGCACTCCCTGGCGGGACGACGGTCTTGATACACCTTACGGGATGTG-2700
 TGCACTGGTATTGAAAGGGTAAGTGGGTGCGGAGGGCTACACCTTACGGGATGTG
 GCCTCTCTCTGCTCTGTTGGCGTTGCCCAAGCGGGCGTACGCGCTGGACACGGAGGT
 GGCGCGTGTGTTGGCGGTTCTCGTCGGGTTGATGGCGCTGACTCTGTCAACATA
 TTACAAGCGCTATATCAGCTGGTCTGTGGCTTCAAGTATTCTGACCAAGAGTGG
 AGCGCAACTGCACGTGGATTCCCCCTCAACGTCCTGAGGGGGCGCAGGCCGTAT



FIG. 89B

CTTACTCATGTGCTGTACACCCGACTCTGGTATTTGACATCACCAAATTGCTGCTGGC-3000
 CGTCCTCGGACCCCTTGGATTCTCAAGCCAGTTGCTAAAGTACCCCTACTTTGTGCG
 CGTCCAAGGCCTTCCGGTCTGCGCGTTAGCGCGGAAGATGATCGGAGGCCATTACGT
 GCAAATGGTCATCATTAAGTTAGGGGCGCTTACTGGCACCTATGTTATAACCATCTCAC
 TCCTCTTCGGGACTGGCGACAACGGCTTGCAGAGATCTGGCGTGGCTGTAGAGCCAGT
 CGTCTCTCCCAAATGGAGACCAAGCTCATCACGTGGGGCGAGATACCGCCGCGTGCAGG-3300
 TGACATCATCAACGGCTTGCCTGTTCCGCCCCAGGGGCGGGAGATACTGCTCGGGCC
 AGCCGATGGAATGGTCTCAAGGGGTTGAGGTTGCTGGCGCCATCACGGCGTACGCCA
 GCAGACAAGGGCCCTCCTAGGGTGCATAATCACCAAGCTAAGGCCAACTTCCCTGGCAACGTGCAT
 AGTGGAGGGTGGAGGTCAGATTGTCAACTGCTGCCAAACCTTCCCTGGCAACGTGCAT
 CAATGGGGTGTGCTGGACTGTCTACCACGGGGCGGAACGAGGACCATCGCGTACCCAA-3600

T

GGGTCTGTATCCAGATGTATACCAATGTAGACCAAGACCTTGTGGGCTGGCCGCTCC

C
 GCAAGGTAGCCGCTCATTGACACCCCTGCACTTGCAGGCTCCTCGGACCTTACCTGGTCAC
 GAGGCACGCCGATGTCATTCCCGTGCAGCGGGGGTGATAGCAGGGGCAGCCTGCTGTC
 GCCCCGGGCCATTTCCTACTTGAAGGCTCTCGGGGGTCCGCTGTTGTGCCCCCGCGGG
 GCACGCCGTTGGGCATATTAGGGCCGGGTGTCACCCGTGGAGTGCTGGCTAAGGCCGGTGG-3900
 CTTTATCCTGTGGAGAACCTAGAGACACCATGAGGTCCCCGGTGTTCACGGATAACTC
 CTCTCCACCAAGTAGTGGCCCCAGAGCTTCCAGGTGGCTCACCTCATGCTCCACAGGCAG
 CGGCAAAAGCACCAAGGTCCCCGGTGCATATGCAGCTCAGGGCTATAAGGTGCTAGTACT
 CAACCCCTCTGTTGCTGCAACACTGGCTTGGTGTACATGTCAAGGCTATGGGAT

T

CGATCCTAACATCAGGACCGGGGTGAGAACAAATTACCACTGGCAGCCCCATACGTACTC-4200
 CACCTACGGCAAGTCCCTGCGACGGCGGGTGCTCGGGGGCGTTATGACATAATAAT
 TTGTGACGAGTGCCACTCCACGGATGCCACATCCATCTTGGCATCGGCACTGTCCTTGA
 CCAAGCAGAGACTGCGGGGGCGAGACTGGTTGCTCGCCACCCCTCCGGGGCTC
 CGTCACTGTGCCCCATCCAAACATCGAGGAGGGTGTCTGTCCACCGGAGAGATCCC
 TTTTACGGCAAGGGTACCCCCCTGAGAATCAAGGGGGGGAGACATCTCATTTCTG-4500
 TCATTCAAAGAAGAAGTGCAGCAAGCTGGTCGATTGGGATCAATGC
 CGTGGCCTACTACCGCGGTCTTGACGTGTCGTACCGGACAGCGGCATGTTGCGT

A

CGTGGCAACCGATGCCCTCATGACCGGCTATACCGCGACTTCGACTCGGTGATAGACTG
 CAATACGTGTCACCCAGACAGTCGATTCAGCCTTGACCTTACCTTCACCATTGAGAC
 ATCACGCTCCCCCAGGATGCTGTCTCCCGCACTCAACGTGGGGCAGGACTGGCAGGGG-4800
 GAAGGCCAGGCATCTACAGATTGTGGCACCGGGGGAGCGCCCCCTCCGGCATGTTCGACTC
 GTCCGCTCTGTGAGTGTCTAGCGAGCGTACGAAACACCCCGGGCTTCCCGTGTGCCAGGACCA
 GACTACAGTTAGGCTACGAGCGTACGAAACACCCCGGGCTTCCCGTGTGCCAGGACCA
 TCTTGAATTGGGAGGGCGTCTTACAGGCTCACTCATATAGATGCCACTTTCTATC
 CGAGACAAAGCAGAGTGGGGAGAACCTTCTTACCTGGTAGCGTACCAAGCCACCGTGTG-5100
 CGCTAGGGCTCAAGCCCCCTCCCCCATGTTGGGACAGATGTGGAAGTGTGTTGATTCGCCT
 CAAGCCCACCCCTCCATGGGCCAACACCCCTGCTATACAGACTGGCGCTGTTCAGAATGA
 ATCACCCCTGACGCACCCAGTCACCAAATACATCATGACATGCACTGTGGCCGACCTGGA
 GTCTGTCACGAGCACCTGGGTGCTCGTTGGCGCGCCTGGCTGCTTTGGCCGCGTATTG
 CCTGTCAACAGGGCTGCGTGGTCATAGTGGCAGGGTGTCTGTCCGGGAAGCCGGCAAT-5400
 CATAACCTGACAGGGAAAGTCTTACCGAGAGTTGAGATGGAAGAGTGTCTCAGCA
 CCTTACCGTACATCGAGCAAGGGATGATGCTCGCCGAGCAGTTCAAGCAGAAGGCCCTCGG
 CCTCCTGCAAGACCGCGTCCCGTCAAGCAGAGGGTATCGCCCTGCTGTCAGACCAACTG
 GCAAAAACCTGAGACCTTCTGGGCGAAGCATATGTGGAACCTCATCAGTGGGATAACAATA
 CTTGGCGGGCTTGTCAACGCTGCCATTGTTAACCCCGCCATTGCTTACATTGATGGCTTTAC-5700
 AGCTGCTGTCACCGCCACTAACCACTAGCCAAACCCCTCTTCAACATATTGGGGGG
 GTGGGTGGCTGCCAGCTCGCCGGGGGGTGCCTACTGCTTTGTGGCGTGGCTT
 AGCTGGCGCCGCCATCGGCAGTGTGGACTGGGGAAAGGTCTCATAGACATCCTTGCA
 GTATGGCGGGCGTGGCGGGAGCTTGTGGCATTCAAGATCATGAGCGGTGAGGTCCC
 CTCCACGGAGGACCTGGTCAATCTACTGCCGCCATCCTCTCGCCGGAGCCCTGTAGT-6000
 CGGCCTGGTGTGCAAGCAATACTGCGCCGGCACGTTGGCCCGGGAGGGGGCAGTGCA
 GTGGATGAAACGGGCTGATAGCCTTGCCTCCGGGGGAACCATGTTTCCCCACGCA
 CGTGGCGGGAGAGCGATGCAAGCTGCCACTCAGCAGCCACTGTGAAAC
 CAAGCTCTGAGGCAGTGCACCAAGTGGATAAGCTGGAGTGTACCACTCCATGCTCCGG



FIG. 89C

TTCCCTGGCTAAGGGACATCTGGGACTGGATATCGAGGTGTTGAGCGACTTTAACACCTG-6300
 GCTAAAAGCTAAGCTCATGCCACAGCTGCCTGGGATCCCCTTGTGTCCTGCCAGCGCG
 GTATAAGGGGGTCTGGCAGTGGACGGCATCATGCACACTCGCTGCCACTGTGGAGCTGA
 GATCACTGGACATGTCAAAAACGGGACGATGAGGATCGTCGGCTCTAGGACCTGCAGGAA
 CATGTGGAGTGGGACCTTCCCATTAAATGCCATACACCACGGGCCCTGTACCCCCCTTCC
 TGCGCCGAACATACACGTTCGCGCTATGGAGGGTGTGTCAGAGGAATATGTGGAGATAAG-6600
 GCAGGGTGGGGGACTTCACTACGTACGGGTATGACTACTGACAATCTAAATGCCGTG
 CCAGGTCCCATGCCGAATTTCACAGAATTGGACGGGGTGCCTACATAGGTTG
 GCCCCCCCTGCAAGCCTTGCCTGAGCCGAACCGGACGTGGCGTGTGACGTCCAT
 CCCGGTAGGGTCGCAATTACCTTGCAGGCCGAACCGGACGTGGCGTGTGACGTCCAT
 GCTCACTGATCCCTCCATATAACAGCAGAGGCGCCGGCGAAGGTTGGCGAGGGGATC-6900
 ACCCCCCCTCTGTGGCCAGCTCTCGGCTAGCCAGCTATCCGCTCCATCTCAAGGCAAC
 TTGCAACGCTAACCATGACTCCCTGATGCTGAGCTCATAGAGGCCAACCTCTATGGAG
 GCAGGGAGATGGCGCAACATACCCAGGGTTGAGTCAGAAAACAAAGTGGTGATTCTGGA
 CTCCTCGATCCGTTGTGGCGAGGAGGACGAGCAGGGAGATCTCGTACCCGAGAAAAT
 CCTGCGGAAGTCTGGAGATTGCCAGGCCCTGCCGTTGGCGGCCGGACTATAA-7200
 CCCCCCGCTAGTGGAGACGTGAAAAAGCCGACTACGAACACCTGTGGTCCATGGCTG
 TCCGTTCCACCTCAAAGTCCCCTCTGTGCCTCCGCCCTGGAAGAAGCGGGACGGTGGT
 CCTCACTGAATCAACCCATCTACTGCCCTGGCGAGCTGCCACCAGAAGCTTTGGCAG
 CCTCCTCAACTTCCGGCATTACGGCGACAATACGACAACATCCTCTGAGGCCGCCCTC
 TGGCTGCCCGCGACTCCGACGCTGAGCCTATGCCATGCCCGCTGGAGGGGAA-7500
 GCCTGGGATCCGGATCTAGCGACGGGTATGGTCAACGGTCAGTAGTGAGGCCAACGC
 GGAGGGATGTCGTGCTGCTAATGTTACTCTGGACAGCGCACTCGTACCCCGTG
 CGCCGGGAAGAACAGAAAATGCCATTAATGCAACTAAGCAACTCGTGTGTCAGTCACCA
 CAATTGGGTGATTCCACCACTACCGAGTGTGCTGCCAAAGGCAGAAAGTACATT
 TGACAGACTGCAAGTTCTGGACAGCCATTACCGAGCGTACTCAAGGAGGTTAACGCAGC-7800
 GGCCTAAAGTGAAGGCTAACCTGCTATCCGTAGAGGAAGCTTGCAAGCTGACGCC
 ACACCTAGCCAAATCCAAGTTGGTATGGGGCAAAAGACGTCCGTTGCCATGCCAGAAA
 GGCGTAACCCACATCAACTCCGTGTGAAAGACCTCTGGAAGACAAATGTAACACCAAT
 AGACACTACCATCATGGCTAAGAACGAGGTTCTCGTTAGCCTGAGAAGGGGGTCG
 TAAGCCAGCTCGTCATCGTGTCCCGATCTGGCGTGCCTGTGCGAAAAGATGGC-8100
 TTTGTACGACGTGGTACAAAGCTCCCTGGCCGTATGGGAAGCTCTACGGATTCCA
 ATACTCACCAGGACAGCGGGTTGAATTCTCGTGCAGCGTGGAAAGTCAAGAAAACCC
 ATATGGGGTCTCGTATGATAACCGCTGCTTACTCACAGTCACTGAGAGCGACATCCG
 TACGGAGGAGGCAATTACCAATGTTGACCTCGACCCCCAAGCCCGTGGCCATCAA
 GTCCCTCACCGAGAGGTTTATGTTGGGGCCCTCTACCAATTCAAGGGGGAGAACTG-8400
 CGGCTATCGCAGGTGCCCGCGAGCGGGTACTGACAACTAGCTGTTAACACCCCTAC
 TTGCTACATCAAGGCCGGCGCAGCTGTCGAGCCGAGGGCTCCAGGACTGCACCATGCT
 CGTGTGTGGCGACGACTTAGTCGTTACTGTAAGCGCGGGGTCCAGGAGGACGCC
 GAGCCTGAGAGGCCCTCACGGAGGCTATGACCAAGGTTACTCCGCCCCCTGGGGACCCCC
 ACAACCAGAATACGACTTGGAGCTATAACATCATGCTCTCCAACGTGTCAAGTCGCCA-8700
 CGACGGCGCTGGAAAGAGGGTCACTACCTCACCGCTGACCCCTACAACCCCCCTCGCGAG
 AGCTGCGTGGAGACAGCAAGACACACTCCAGTCATTCCTGGCTAGGAAACATAATCAT
 GTTTGGCCCCACACTGTGGCGAGGATGATGACTGATGACCCATTCTTAGCGTCTTAT
 AGCCAGGGACCAGCTGAACAGGCCCTCGATTGCGAGATCTACGGGGCTGCTACTCCAT
 AGAACCACTGGATCTACCTCCAATCTTAAAGACTCCATGCCCTAGCGCATTTCAGT-9000
 CCACAGTTACTCTCCAGGTGAATTAAATAGGGTGGCGCATGCCCTAGAAAATTTGGGT

G

ACCGCCCTGCGAGCTGGAGACACCGGGCCGGAGCGTCCCGCCTAGGCTTCTGGCCAG
 AGGAGGCAGGGCTGCCATATGTGGCAAGTACCTCTCACTGGCAGTAAGAACAAAGCT
 CAAACTCACTCCAATAGCGGCCGCTGGCAGCTGGACTTGTCCGGCTGGTTACGGCTGG
 CTACAGCGGGGGAGACATTATCACAGCGTGTCTCATGCCCGCCCCGCTGGATCTGGTT-9300
 TTGCTACTCCCTGCTTGCTGCAGGGTAGGCACTACCTCTCCCCAACCGATGAAGGTT
 GGGTAAACACTCCGGCCT-----3' terminus

Some clonal heterogeneities producing amino acid
 substitutions are shown. There are many other
 "silent mutations (not shown).



FIG. 90A

R T

MSTNPKPQKKNNRNTNRRPQDVKFPGGGQIVGGVYLLPRRGPRLGVRATR
KTTERSQPRGRQQPIPKARRPEGRWTWAQPGYPWPLYNEGCGWAGWLLSP-100
RGSRPSWGPTDPRRRSRNLGKVIDTLCGFADLMGYIPLVGAPLGGAAARA

T

LAHGVRVLEDGVNYATGNLPGCSFSIFLLALLSCLTVPASAYQVRNSTGL-200
YHVTNDCPNSSIVYEAADAILHTPGCVCREGNASRCWVAMTPTVATRD
GKLPATQLRRHIDLGVGSATLCSALYVGDLGGSVFLVQQLFTSPRRHWT-300

V

TQGCNCASIYPGHI TGHRMAWDMMMNWSPTTALVMAQLLRIQPQAI LD MIA G
AHWGVLAGIAYFSMVGWNWAKVLVLLL FAGVDAETHVTGGSAGHTVSGFV-400
SLLAPGAKQNVQLINTNGSWHNLNSTALNCNDSLNTGWLAGLFYHHKFNS
GCPERLASCRPLTDFDQGWGPISYANGSGPDQRPYCWHYPPKPCGIVPAK-500
SVCVPVYCFTPSPVVGTTDRSGAPTYSWGENDTDVFLNNTRPPLGNWF
GCTWMNSTGFTKVCVGAPPCVIGGAGNNLHCPTDCFRKHPDATYSRCGSG-600

I

PWLTPRCLVDYPYRLWHYPCTINYTIKFIRMYVGGVEHRLAACNWTRGE
RCDLEDRDRSELSPLLLTTTQWQVLPCSFTTLPALSTGLIHLHQNIVDVQ-700
YLYGVGSSIASWAIKWEYVLLFLLADARVCSCLWMMLLISQAEAALEN
LVLNAASLAGTHGLVSFLVFFCFAWYLKGKWPVGAVYTFYGMWPLLLL-800

(N)

LALPQRAYALDTEVAASC GG VVLVGLMALTLS PYYKRYISWCLWWLQYFL
TRVEAQLHWIPIPPLNVRGGRDAVILLMCAVHPTLVFDITKLLAVFGPLW-900
ILQASLLKVPYFVRVQGLLRFCA LARKMIGGHYVQMVI IKGALTGTYVV
NHLTPLRDWAHNGLRLDAVAVEPVVFSQMETKLITWGADTAACGDIINGL-1000
PVSARRGREIILLGPADGMVSKGWRLLAPITAYAQQT RGLLGCIIITSLTGR
DKNQVEGEVQIVSTAQTFLATCINGVCWTVYHGAGTRTIASPKGPVIQM-1100

S T

YTNVDQDLVGWPAPQGSRSLT PCTCGSSDLYLVTRHADVIPVRRRGDSRG
SLLSPRPISYLKGS SGGPLLCPAGHAVGIFRAAVCTRGVAKAVDFIPVEN-1200
LETTMRSPVFTDNSSPPVPQSFQVAHLHAPTSGKSTKVPAA YAAQGYK

L

VLVLNPSVAATLGFGAYMSKAHGIDPNIRTGVRTITGSPITYSTYGKFL-1300
ADGGCSGGAYDIIICDECHSTDATSLISLIGITVLDQAE TAGARL VVLATAT
PPGSVTVPHPNIEEVALSTTGEIPFYGKAIPLEVIKGGRHLIFCHSKKC-1400
DELAAKLVALGINAVAYYRG LDVSIPTSGDVVVVATDALMTGYTGDFDS

Y

(S)
VIDCNTCVTQTVDFSLDPTFTIETITLPQDAVSRTQRRGRTGRGKPGIYR-1500
FVAPGERPSGMFDSSVLCCECYDAGCAWYELTPAETTVRLRAYMNTPGLPV
CQDHLEFWEGVFTGLTHIDAHFLSQTKQSGENLPYLVAYQATVCARAQAP-1600
PPSWDQMWKCLIRLKPTLHGPTPLIYRLGAVQNEITLTHPVTKYIMTCMS
ADLEVVSTWVLVGGVLAALAAYCLSTGCVVIVGRVVLSGKPAIIPDREV-1700
LYREFDEMEECQSQHLPYIEQGMMIAEQFKQKALGLLQTA SRQAEVIA PAV
QTNWQKLETFWAKHMWNFISGIQYLAGLSTLPGNPAPIASLMAFTAATVSP-1800
LTTSQTLLFNILGGWVAQLAAPGAATAFVGAGLAGAAIGSVGLGKVLI D



FIG. 90B

(G)
ILAGYGAGVAGALVAFKIMSGEVPSTEDLVNLLPAILSPGALVVGVVCAA-1900

(HC)
ILRRHVGPGEGAVQWMNRLIAFASRGNHVSPTHYVPESDAARVTAILSS
LTVTQLLRRLHQWISSECTTPCSGSWLRDIWDWICEVLSDFKTLKAKLM-2000

(V)
PQLPGIPFVSCQRGYKGVWRGDIMHTRCHCGAEITGHVKNGTMRIVGPR
TCRNMWSGTFPINAYTTGCPCTPLPAPNYTFALWRVSAEYVEIRQVGDFH-2100
YVTGMMTDNLKCPQVPSPEFFTLDGVRLHRFAPPCKPLLREEVSFRVG
LHEYPVGSQLPCEPEPDVAVLTSMLTDPHITAEEAGRRLARGSPPSVAS-2200
SSASQLSAPSLKATCTANHDSPDAELIEANLLWRQEMGGNITRVESENKV
VILDSFDPLVAEEDEREISVPAEILRKSRRFAQALPVWARPDPYNPLVET-2300

(S)
WKKPDYEPPVVGCPPLPPKSPPVPPPRKKRTVVLTESTLSTALAEATR

(FA)
SFGSSSTSGITGDNTTSSEPAKPGCPPDSDAESYSMMPLEGEPGDPDL-2400
SDGSWSTVSSEANAEDVVCCSMSYSWTGALVTPCAEEQKLPINALSNSL
LRHHNLVYSTTSRSACQRQKKVTFDRLQVLDSHYQDVLKEVKAASKVKA-2500

(F)
NLLSVEEACSLTPPHSAKSFKGYGAKDVRCHARKAVTHINSVWKDLLEDN
VTPIDTTIMAKNEVFCVQPEKGRKPARLIVFPDLGVRVCEKMALYDVVT-2600
KLPLAVMGSSYGFQYSPGQRVEFLVQAWSKKTPMGFSYDTRCFDSTVTE

(G)
SDIRTEEAIFYQCCDLPQARVAIKSLTERLYVGGPLTNSRGENGYRRCR-2700
ASGYLTTS CGNTLTCYIKARAACRAAGLQDCTMLVCGDDLVVICESAGVQ
EDAASLRAFTEAMTRYSAPPGDPPQPEYDLELITSCSSNVSVAHDGAGKR-2800
VYYLT RDPTTPLARA AWE TARHTFVNSWLGNIIMFAPTLWARMILMTHFF
SVLIARDQLEQALDCEIYGACYSIEPLDLPPPIIQR LHGLSAFSLHSYSPG-2900

G
EINRVAACLRKLGVPPLRAWRHRARSVRARLLARGGRAAICGKYLFNWAV

(P)
RTKLKLTPIAAGQLDLSGWFTAGYSGGDIYHSVSHARPRWIWFCLLLA-3000
AGVGIYLLPNRO-3011

Stop codon

() = Heterogeneity due possibly
to 5' or 3' terminal cloning
artefact.



FIG. 91

